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CALENDARS OF THE INDIANS NORTH OF MEXICO

BY
LEONA COPE

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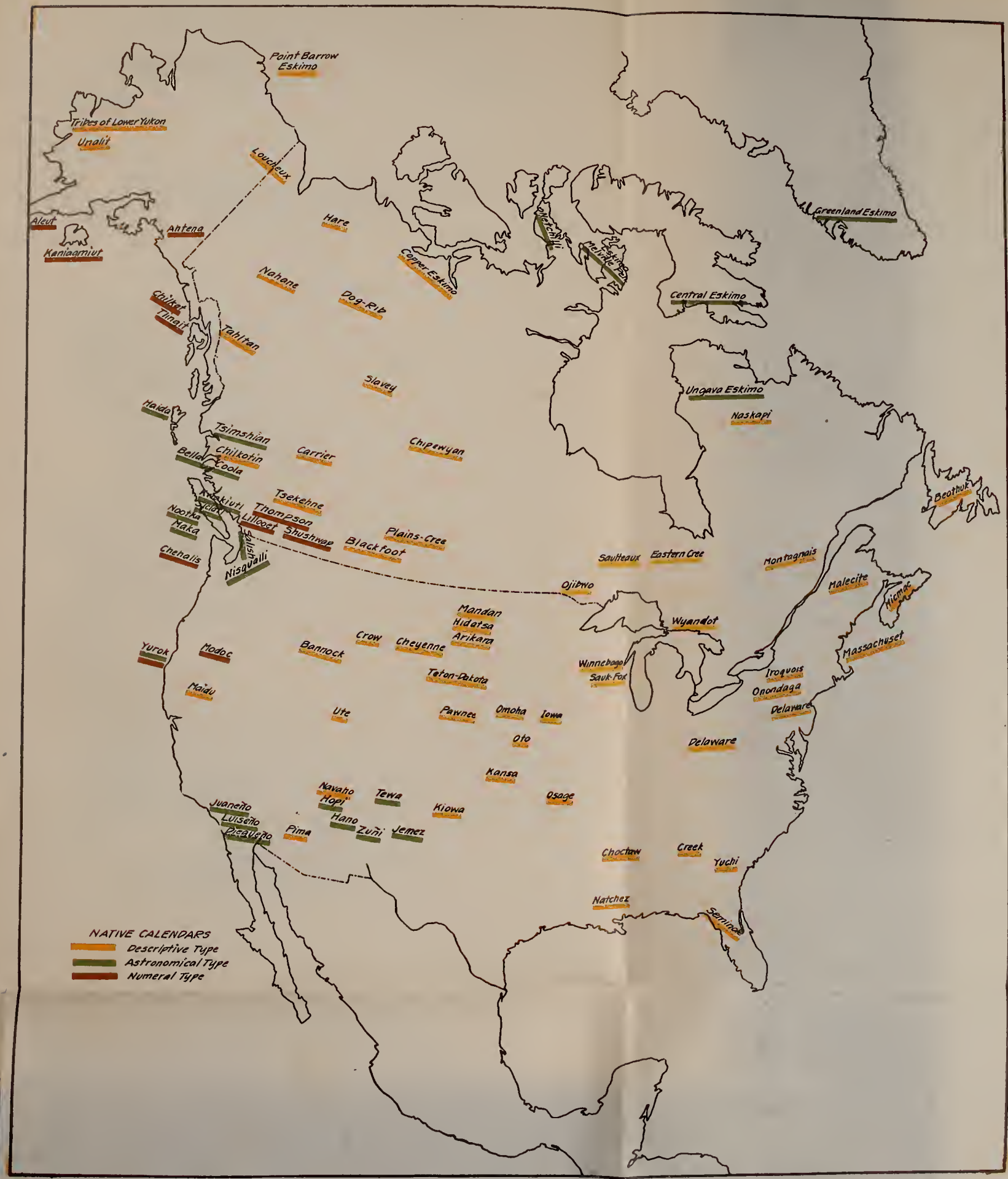

Map 1. Types of Native Calendars.

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INTRODUCTION

The methods of time-reckoning which are used by the Indians north of Mexico are remarkable for their simplicity and for the absence of uniformity, the influence of local and economic conditions being very prominent. In no case are these methods worthy of the name calendar system in its usually accepted sense—that is, a series of years, named or numbered from a definite fixed point, each subdivided into several smaller units, and adjusted more or less accurately to the solar year. In this paper, any native attempt, however crude, to designate in a definite succession the different periods of time will be considered a calendar or a calendrical system. This would of course include almost any method of noting time divisions; but even the simplest of such devices seems to contain the elements of time-reckoning, which under the stress of necessity, or the elaborating influences of social or religious organization, would develop into a more complex and accurate system.

Evidences of such higher development are found in portions of North America—notably among the tribes of the North Pacific Coast and of the Southwest area, where fairly complex systems with an astronomical basis are in use, which contrast with the very simple non-intercalated and unregulated attempts of the Indians of the Plains, and of Northeast and Southeast Woodlands.

Confusion in native reckoning often results from the fact that the names for the lunar periods are taken from natural seasonal phenomena, which of course vary in time of occurrence from year to year. Further difficulties arise because a characteristic which gives name to a "moon" may be prominent for a longer or a shorter time than is occupied by the lunation.

Another interesting fact of note about these calendars is that they were not used to record the passage of time; that is, the "calendar" was not designed for recording the number of years or months or days since a given event took place, or between two given events. The Indians were able to keep a fairly close count of the passage of time within the current year, but beyond this all chronology was indefinite. Since their occupations, food, and manner of life in general varied according to the changes of nature, it is not strange that they carefully observed the atmospheric and celestial phenomena, or had acquired a practical knowledge of the instincts and habits of animals, birds, and fishes.

The so-called historical "calendars"—annals, winter-counts, notched sticks, and the like—will be given no consideration in this paper, since they are concerned with the recording of events in a vague historical sense rather than with time-reckoning. Moreover they were the work of a few individuals and were not understood by the people at large.

BASIS OF TIME RECKONING

ASTRONOMICAL

Although many tribes possessed some astronomical knowledge, comparatively few used it as a basis for reckoning periods longer than a moon. Everywhere the changing positions of the sun indicated the divisions of the day, while the movement of the prominent constellations, the Pleiades, Orion's belt, and Ursa Major, and the morning and evening stars, marked the night divisions. The Eskimo judge the passage of the dark season by the positions of the constellations; the Point Barrow seal-netters, for instance, know that when Arcturus has passed over to the east, dawn is at hand and seal netting nearly over.[1] Elsewhere the constellations indicated only the subdivisions of the night or the approach of dawn, which may be of ceremonial importance.

There are some indications in the literature that a few of the Indian tribes recognized the equinoxes, but in no case did the equinoxes directly enter into the time-reckoning.[2]

Doubtless all the Indians knew that the sun is higher in the heavens in the summer than during the winter, and connected this fact with the seasonal differences of heat and cold. Many of the North Pacific Coast and Southwest Indians and the Eskimo used the winter solstice as a starting point for their named series of lunations; a few of the Plateau and Mackenzie tribes seem to recognize periods when the sun is "dead" and when it is "returning." They

[1] Murdoch, 41.

[2] In the month names of the Nootka, "Ay-yak-kamilh" (March or April) and "Cheeyahk-kamilh" (October or November) each contains the element "yak" or "yahk," which according to Sproat (p. 123) means "long" when used in other combinations or alone. This might refer to the relative lengths of days and nights. But "yak" evidently does not mean long here. Both Sproat and Sapir (ms.) translate "Ay-yak-kamilh" as "when the herrings spawn." Sproat has no translation for "Cheeyahk-kamilh"; Sapir gives "cutting up moon" (fish cut up for smoking). In speaking of the Tewa, Bandelier (p. 311) says the altars used in the kivas were green for the summer months, and yellow after the autumnal equinox. But Harrington, J. P. (p. 62) finds no evidence of an observation of the equinoxes.

may have used this knowledge as a means of regulating their year. Although there is no direct evidence of such use, still since these tribes are geographically close to the North Pacific area where astronomical knowledge enters definitely into the calendar, they may have been influenced by this more exact method. Among many tribes there are months named from the lengths of the days[3] but the nomenclature in no way affects the calendric system. The Plateau tribes have a period of variable length which kept their calendar regulated, thus showing they recognized the necessity of intercalation. The Indians of the Southwest reckoned from the extreme points of the sun's path, and their influence extended over into southern California in this as in so many other respects.

Even where the solstice was recognized as a primary point, its determination was more or less uncertain, for the Indian had no accurate mechanical device to aid him. In Greenland and the Ungava District the shadows cast by the rocks indicate to the Eskimo the time when the sun has reached its lowest point.[4] Direct observation was practiced by the Northwest and Southwest tribes. The Kwakiutl observe the winter solstice in the morning, when they notice the extreme point on the horizon reached by the sun.[5] The Nootka call observing the solstices ho-'palnk^{cn} "to look after the sun." The observer places a stick in front of himself, while another man places a second stick in line with the first and the point of the rising of the sun. The observation continues for several days. The period when the sun remains quiet (literally: "sits down") for four or five days before beginning its return journey, is called the solstice. The observation of the solstice is of great economic importance. If one wishes to be successful in the hunting season, he must perform certain magical rites when the days are getting longer and the moon is waxing.[6] The Hopi have "priests skilled in the lore of the sun," who

[3] As among the Onondaga (Beauchamp, 160):
Ses-ka-hah: sun goes for long days (June).
Ses-ka-go-nah: sun goes for longer days (July).
Tis-ah: little long day (December).
Tis-go-nah: longer day (January).
These periods do not mark the beginning of the year, or the grouping of the months into seasons, and seem to be mere lunations.

[4] Cranz, 211; Turner, 202.

[5] Boas (letter).

[6] Sapir (ms.). During the four days in which the sun is still, it is carefully watched. If it goes beyond the regular limit, the sun is thought to be after fish in the water. This is a sign of an abundant supply of fish; but if it comes to the regular limit, begins to go back and then returns, it is a sign of approaching famine.

determine the time of the year for their various ceremonials by observing the exact place of the rising and setting of the sun. Of the thirteen points on the horizon, two are called "sun houses," one marking the place of sunrise at the winter solstice, the other at the time of the summer solstice.[7] The Tewa also note the point at which the sun rises but have not such an elaborate system as the Hopi. Their method is to sight along race-courses or hills, or to note the place of sunrise on the outline of the eastern mountains. From the Santa Clara village the sun appears to rise at different places in a large gap in the Santa Fe range, known as Wijo; the solstices are determined from the apparent points of rising, but the precise method used is unknown.[8] The Zuñi also carefully observed the solstices.

SEASONAL

The recurrence of the moon's phases—a phenomenon which all uncivilized tribes observe—divides the year into "months," to each of which the term "moon" is applied. Seasonal events, however, usually give name to the "moons."

Among some of the Eskimo, seasonal occurrences form the only basis of reckoning for the summer. The Ungava Eskimo seem to have disregarded lunations altogether.[9] Their periods are named from terrestrial events, such as the breaking up of the ice, ripening of salmon berries, and the time of reindeer crossing the river; there are also references to the sun, its return and position in the sky. Several periods may overlap, but there is a specific name for each. Since more events happen in summer, there are more summer divisions. The Point Barrow Eskimo, according to one account,[10] have only nine moons, and for the remainder of the year "there was no moon, only the sun." The Greenland Eskimo also have difficulty with their summer months; they depend on the growth of the eider duck, the size and appearance of the seals, and the like, for the regulation of their calendar when the moon is invisible.[11]

A seasonal event furnished the starting point of the year among the Indians of the Mackenzie, Plains, Plateau, Northeast and Southeast Woodlands areas, and sometimes elsewhere. The selection of this

[7] Fewkes, 1897, 258–259.

[8] Harrington, J. P., 47.

[9] Turner, 202.

[10] Murdoch, 42. Simpson secured names for all twelve months: Simpson, 260–261.

[11] Cranz, 211.

initial event varies greatly: agriculturists seem to prefer the spring—determined by the drying of the earth or the time for planting—or the harvest time of their chief crop; hunting peoples often choose the rutting season of some wild animal, but some prefer the beginning of winter, and others spring—marked by the sprouting of the grass; sea-going tribes sometimes take spring, but more often the beginning of winter. Only among several maritime and agricultural tribes of the Northwest and Southwest is the year determined solstitially rather than seasonally.

UNITS OF TIME RECKONING

THE DAY AND ITS SUBDIVISIONS

The day, as a unit of time reckoning, was of little importance. Like most primitive peoples the Indians more often count by nights than by days; there are no names to distinguish one day from another, except as the direct result of European influences.[12] The Navaho, for instance, have taken over the Spanish "Domingo," and mention the other days as so many days before or after "Domingo."[13] The Kiowa have also learned to recognize Sunday and count the second, third, fourth, and fifth days after it; Saturday is known as "Little Sunday."[14] The Tewa having adopted the entire week-series from the Spanish, do no counting from Sunday. The Spanish term for week, "semana," is seldom used by them; Sunday frequently means week, and Ja-i "time between [Sundays]" is also used.[15] The Dogribs have obtained slips of paper on which the missionaries check each day of the week, marking Sunday with a cross.[16] With the help of this device they know when to attend the mission services.

Often when the Indians agreed on a meeting at a particular time, they arranged bundles of sticks, from which they destroyed one for

[12] Among the Central Eskimo: "the days of the month are exactly designated by the age of the moon" (Boas, 1888, p. 648). The Seminole also seem to have made some attempt of this sort: "these [days] are, in part at least, numbered by reference to successive positions of the moon at sunset. Tä-la-häs-ke . . . pointed to the new moon, swept his hand from west to east to the place the moon would be when he should go" (MacCauley, 525). Radloff (307) says the Kaigani count their time by the moon's phases, and number the days by the "sleeps." He gives fourteen terms, many of which are not translated; the terms referring to the first and third quarters are considered doubtful by Radloff.

[13] Franciscan Fathers, 58–59.

[14] Mooney, 1898, 365.

[15] Harrington, J. P., 67.

[16] Russell, 1898, 165.

each day or night as it passed. When the last stick was gone they knew the appointed time had come. This method seems to have been common in the Southeast Woodlands and the Southwest. When a Ute or a Navaho wishes to indicate to a subsequent traveler how long ago he passed a particular place, he places grass and flowers on a pile of stones; the degree of withering roughly indicates the passage of time.[17] The Nascapee are said to use a rude sun dial. They place a short stick upright in a sandy spot and draw a line where the shadow falls, thus showing the position of the sun, and therefore the time, at which the first party was there.[18] Gaudet speaks of sending a Lake of the Woods Indian in winter to a camp about fifty miles away. He followed the next day and noticed, in three different places, two sticks placed in the snow in such a way that a line drawn between them would indicate the position of the sun, and thus show the time of day at which the Indian had reached the spot.[19]

Very often the same native term designates day-before-yesterday and day-after-tomorrow. The day seems to begin with sunrise or daylight; night, with sunset or the approach of darkness. The subdivisions of the day are indefinitely marked, varying in number from tribe to tribe. Several examples will show the character of these divisions.

The Stlatlumh have the following:[20]

plan tcɛ̃ä'e p'eïl: just as it comes day (day break).
plan aitl p'eïl: just now morning (dawn).
plan tcɛ̃tl pū'lmūq: just see things (daylight).
plan aitl Eskē̃t: just now day (broad daylight).
ō'tska snu'kuma: outside sun (sunrise).
plan kāqɛ'qɛtka: early morning.
kāqā'tka: mid-way between sunrise and noon.
kɛn ri'pa: noon or midday.
etc.

From the Navaho we have:[21]

hayīlkhā (nt'ae) it is dawn.
naue''nłkhā or naneinłkhā (nt'ae) or nāndzā'gai (nt'ae): it is daylight.
a'ltso hŏs''îd (nt'ae): it is full daylight.
qa'i'â: sunrise.
shă'hinā, or qinā'shă'hidon'ał, or t'ădo shă' hinăda: shortly after sunrise.
dă'hădī'â: sun is well up.
nikhē'ldûi, or honidû'i: it is getting warm (approximately 8–10 A.M.).
etc.

[17] Thompson, 118.

[18] *Idem:* from Hind, Explorations in Labrador.

[19] Thompson, 118.

[20] Hill-Tout, 1905, 155. Although numerous terms are given, Hill-Tout does not consider his list exhaustive.

[21] Franciscan Fathers, 37. A complete time circle for the twenty-four hours is given.

These examples may be taken as typical, since only minor differences appear, such as the number of the periods considered. Thus the Netchillik seem to divide the day into only three parts: morning, evening, and night.[22]

Several particularly interesting names of diurnal periods are:

ts'ō tât: "blue night" (morning), Tlingit.
yik haĭ't'āji: "leaning towards dawn" (probably a reference to the milky way), Navaho.
tage: "straight up" (reference to the sun's position, meaning noon), Tewa.
hɛɹentageɹe: "morning straight up time" (9 or 10 A.M.), Tewa.
t'e'itageüi: "evening straight up time" (2 or 3 P.M.), Tewa.
skau'tlEnteut: "creeping up the mountain" (a reference to the line of a shadow on the eastern mountains), StlatlumH.
ketcli'pkwa: "reached the top" (i.e., the line of shadow), StlatlumH.

It is important from the Indian standpoint, because of certain ceremonials, to recognize the divisions of the night. This is particularly noticeable in the Southwest where the ceremonies are accompanied with complicated rites, for the singing of certain songs at the proper time in the early morning is very necessary. Traces of this idea are found in the rites of most Indians. Among the Maidu the period just before dawn is determined by a shaman, from the position of the stars of the Dipper.[23]

A strange custom prevails among the Greenland Eskimo, where the ebb and flow of the tides mark the subdivisions of the day,[24] with no reference to the sun and light. The daily change of the sun's position is not so marked here as in the lower altitudes, and for many months the moon and stars are invisible, while in the winter the sun never rises above the horizon.

THE "WEEK"

Among several widely separated tribes we have evidence of the division of the "moon" into periods roughly corresponding to our weeks. These periods differ in length and method of determination.

The Zuñi "week" is approximately one-third of a month, and is called topínto as'tĕm'la, or "one ten";[25] what the basis of such a

[22] Amundsen, 45–47.
[23] Dixon, 336.
[24] Turner, 202.
[25] Stevenson, 108.

period is, is unknown, nor does any similar period occur among other tribes in North America, although in South America it was found among the Peruvians.

The Wyandots[26] use a much simpler arrangement. A lunation has four parts, each with a name descriptive of the moon's appearance, and also termed sawā'trat, "it begins again." The names of the separate periods are as follows:

1. sāwāte·dī'eri'eę': it fills itself up full again (the full moon).
2. tusāu'ⁿra': there again dark (i.e., it is becoming dark again).
3. sawāte·"diera·'mę't: the moon comes off again partly.
4. ya''dierase'' eye': new moon again.

They apply the term wa'trahā·'kwa' (it is turned over, as though referring to a kettle) to the few days when the moon is invisible. A peculiarity of this division of the month is that the subdivisions mark the changing appearances occurring during the decrease of the moon; there seem to be no subdivisions during the waxing; nor is there a name for the entire time of increase, unless sāwāte·'dī'eri'ee' covers this period. The translation might imply such an interpretation; but the explanation—the full moon—would apply only to the few days preceding and following the exact time of the fullness.

The Malecites[27] divided the moon into nine parts. But these periods were not definite time-divisions; they seem to describe the successive changes in the moon's appearance and only in a general way refer to intervals of time. The actual divisions are as follows:

1. nangusa: she is born (the new moon).
2. nenaghil: she grows (from the fifth to the sixth day of the moon).
3. kegan·de meghil: soon full (from the eleventh to the twelfth day).
4. wemeghil: she is full.
5. pekinem: after being full (the sixteenth, seventeenth, and eighteenth days).
6. utsine: she commences to die (the twenty-second and twenty-third days).
7. pebassine: she is half dead.
8. metchina or sesemina: she is entirely dead (when nearly disappearing).
9. nepa: she is dead (no moon).

Among the Plains Cree, "all subdivisions of time [less than a month] are denoted by the different phases of the moon as 'moon of

[26] Barbeau (ms.).

[27] Mechling, ms., quoting Vetromile: Abnaki and their History, 81.

increase' (first quarter), 'half moon' (second quarter), 'more than half round' (third quarter), 'full or round,' 'decreasing,' and 'dead'."[28]

It is interesting to compare Radloff's data concerning the Kaigani.[29] Of the fourteen names given to the days or "sleeps" of the moon, Radloff thinks that four may refer directly to the phases of the moon, and that the remaining names refer to the number of the night:

1. ku'ng et a'mdsu: newer moon.
5. ku'nge i'nnujelg: fifth night, or first quarter(?).
9. ku'nge ĸeku ne âlgang: full moon.
13. ku'nge innujelg: the third quarter(?).

There is no other direct information which shows a subdivision of the month into "weeks"; although the waxing and the waning of the moon are quite generally recognized, since ceremonies are usually held during the time of increase. The various vocabularies and dictionaries give terms for the different phases of the moon, which may have been regarded as definite periods of time, but exact evidence on this point is lacking.

THE MONTH

The terms "month" and "moon" are used in this paper in reference to any short period of time which roughly corresponds to our month. In nearly all cases, however, the basis of the month is the lunation, counted either from the new or the full moon. Natural phenomena gave names to the months; but the division of the year into shorter periods is marked by the recurrence of some phase of the moon, rather than by these phenomena. That the lunar phases do form the real basis, is shown in several ways.

The term used to express the period.—In every case that there is information, the expression for "month" is the same as for the moon, and it often corresponds to that for sun. The Nootka[30] have a suffix, -q-and, to denote a month. It means round object, that is, "moon"; it is also used for dollar in the numeral forms. They have in addition an independent word, hopał, which is the same term as for moon and sun. The month is started from the new moon—the expression being, hanal atei tł, "it is joined or patched on." The Timucua

[28] Hayden, 1863, 245.
[29] Radloff, 307.
[30] Sapir, ms.

term for moon, acuhiba, literally means "the one who tells"—or the indicator (of time).[31] There is no case in which the month term is etymologically unrelated to that for moon.

The duration of the period.—The length of the month evidently corresponds as closely to the lunation as offhand observation will permit, even though its exact length in days is often unknown to the natives. An old Quileute, being asked definitely about this point, said there were thirty-two days to a moon. When he was shown the mistake involved in such a reckoning, he maintained that his count was only approximate.[32] Some of the Blackfoot are said to count twenty-six days, some thirty days to a moon;[33] but since the period in which the moon is invisible is considered the beginning of the next month, the duration of the month must vary considerably. The Plains Cree seem to disregard the days when the moon is invisible, for their month begins when the new moon is first noticed, and ends when the moon is no longer visible.[34] The "Algonquins" are said to have had twenty-eight days to a month, and thirteen months to a year.[35] This is very improbable. Such a reckoning would involve more careful and accurate astronomical observations than the Indians were able to undertake. Moreover, as far as the calendar is concerned, one cannot make such general remarks as, "in all Algonquin tribes." There is no phase of the calendric systems which holds for any group of Indians. Variations occur even among the most closely related groups. Most investigators state that the Indians were unable to tell the number of days in a month. This is indeed more probable, for there was no occasion for such exactness, and without designations for the days, it is difficult to see how they could keep account of the number of days necessary to complete a "moon." No sequence of prominent natural events would give even a rough correspondence to the lunations; the seasons of the various fruits, berries, and wild game may be of longer or shorter duration than a "moon"; and may vary in length and time of occurrence from year to year.

The recognition of the moon's phases.—All uncivilized tribes distinguish the different phases of the moon. Among the North American Indians, the new moon usually marks the first of the month, although

[31] Gatschet, 1880, 473.

[32] L. J. Frachtenberg (letter).

[33] Wissler, 45.

[34] Hayden, 1863, 245.

[35] Schoolcraft, 1846, 85.

the full moon is sometimes used. The waxing and the waning of the moon were also noted. The Nootka are very particular in noticing the solstices and the new moon, for it is important that the 'o·smʌte' ceremonies take place in the waxing of the moon and the lengthening of the days, otherwise the performance of these ceremonies causes bad luck.[36] This idea may explain the importance of these same periods among certain other tribes, since the more complex and highly developed the ceremonialism is, the more careful the determination of the solstices, the lunar phases, and the time-reckoning. The tribes among whom the full moon marks the beginning of the "moon" are: the Greenland Eskimo,[37] certain tribes of Northwestern Oregon and Western Washington,[38] the Quileutes,[39] Juaneño,[40] Kiowa,[41] Comanche,[42] and Kansa.[43] The Lenni Lenape used either the new or the full moon.[44]

The "week."—In the few instances, mentioned above, in which the month is subdivided into "weeks," the phases of the moon determine the division.

Variability.—The sequence of the months is often given differently by individuals of the same tribe. Some of the variations may be due to a partial loss of meaning in the month names—that is, a tendency toward conventionalization of the name; and to the fact that the counts were all oral. An oral series readily admits of variations between tribes, divisions of tribes, or even families. Dr. Radin mentions that two month names used by the Nebraska Winnebago differ from those found among the Wisconsin Winnebago, thus indicating a change in month designations ensuing from a change of locality since about 1860.[45]

[36] Sapir (ms.). The "'o·smʌte'" ceremonies consist of "prayer, bathing, and rubbing down with hemlock branches, rubbing one's self with medicines, and undergoing various imitative actions which belong to the domain of sympathetic magic." They are secret rites, usually performed at night, in certain selected spots. Their purpose is to acquire magical power for a particular pursuit. There are many kinds of these ceremonies, each of which has its appropriate month or portion of a month.

[37] Cranz, 211.

[38] Gibbs, 1887, 213.

[39] L. J. Frachtenberg (letter).

[40] Boscana, 302.

[41] Mooney, 1898, 368.

[42] Schoolcraft, 1860, 236 (Burnet).

[43] Hunter, 304.

[44] Zeisberger, 1830, 108.

[45] P. Radin (letter).

To quote again from the Nootka accounts—for we have exceptionally good data for this tribe—Dr. Sapir says:[46] "Not all families count alike. One family is sometimes one month ahead, or one month behind another. Sometimes they quarrel about what month it is, the names being well known, but the exact order in which the months occur and the exact time of the beginning of each month being somewhat open to dispute. Each family should keep track of the months for itself so as to know when to 'o·samɪtc'. Sometimes one hunter tries to fool another in order to produce bad luck for him. He might say: 'This month is so and so.' The other thinks it is time to 'o·samɪtc' say for hair seal. He is mistaken, and inasmuch as it is bad luck to 'o·samɪtc' for hair seal at that particular time, he fails to get many in the hunting season."

A comparison of the different accounts given for the same tribe occasionally shows remarkable differences in the sequence of the same month names, and also substitutions. Both the Masset and Skidegate Haida have a "between month"; among the former this occurs in October, between the summer and winter series where it properly belongs, as its name indicates; the Skidegate give it as April, in the summer series. "Wīt gias" (russetback thrush month) appears in both divisions. In the Masset list it comes in March, while in the Skidegate it falls in May. One name for the first month of the Masset series, "ǫ!a′ gan gias" (April) is almost identical with the second winter month of the Skidegate, "ǫ!ā′ gana gias," (October).[47] Another list obtained at Masset differs from this in having only twelve moons—"ǫoñqō′ns" (June) being omitted; and in calling the month corresponding to our May, ān-kōng-as (berry month) instead of wā′al-gwalga-i (meaning that the weather is still somewhat cold). The place of the "between month" in this list also appears before "s^{e}ān gias" instead of between the summer and winter series.[48]

Similar results appear in comparing the two accounts of the Tlingit. A Sitka informant gave a list of thirteen months, beginning the count in August; a Wrangell informant gave twelve months, beginning the count in January. "Four names correspond exactly in both lists, five other names are the same but are not applied to the

[46] Sapir (ms.).

[47] "No explanation of its meaning could be obtained from the Masset division; but the Skidegate say the first word refers to a part of the halibut near the gills, and the second word to the backbone."—Swanton, 1903, 331–335.

[48] *Idem.* Swanton compares with the results of his own investigations a list obtained by Rev. J. H. Kean, a missionary at Masset.

corresponding periods, and the names are sometimes interpreted differently."[49] Dr. Swanton considers the Sitka order "probably more ancient than the other" in regard to the beginning of the year.

A study of the calendars of the four Kwakiutl tribes—Nimkish, Mamalelekala, Nakwartok, and Koskimo—brings out the same uncertainty in the beginning and order of the month names.[50]

Simpson and Murdoch give accounts of the Point Barrow Eskimo which agree fairly well; although Murdoch was told there were only nine moons, and after the ninth "there was no moon, only the sun," while Simpson gives names for twelve. Simpson also places "departing to hunt reindeer" in January, before "great cold and new sun" (February). Murdoch gives the same names with the order reversed. Judging from the time of their actual occupations, Murdoch[51] gives the more reasonable sequence. There are other differences in these two lists, also.

Numerous other examples might be given. Reference might be made to the four Tewa villages (San Juan, San Ildefonso, Santa Clara and Nambé) or to the several accounts of the Dakota, Winnebago, Plains Cree, Eastern Cree, and Northern Saulteaux, since they show that this tendency toward variation and confusion is confined to no particular locality. The variations found in the simpler types of calendars consist chiefly of differences in the selection of phenomena for the month name. In the complex types, differences in the order of the month series appear, but substitution of other phenomena also occurs. The substitution is probably due to the general simplicity of all the systems; simple calendars have made no advancement beyond the need of designating separate periods of time, and the names have formed no definite succession, so that any prominent natural phenomenon may supply the necessary name. The differences in the order of the month series seem to result from a conventionalizing of the names, whereby their significance is lost.

THE SEASONS

In general the seasons are independent units which sometimes enter indirectly into the time reckoning, where there is a grouping of the months into a summer and a winter series. The Ute calendar is somewhat analogous to this grouping, in that it has the months as

[49] Swanton, 1908.

[50] Boas, 1909, 413.

[51] Simpson, 260; Murdoch, 42.

definite subdivisions of the seasons, the moons being known as "moon of a particular season," "middle or big moon of that season," and "last moon of that season."[52]

The Indian's season is determined by the more important changes in the natural phenomena, the gradual approach of which makes it possible for him to have as many seasons—that is to recognize as many events—as he wishes.

The number of seasons recognized varies from two to eight; where more than four are recognized the main seasons are subdivided naturally. The periods in use among the Hare furnish an excellent example:[53]

Description of the period	*Native term*	*Translation*
Winter		
with sun	χay. = χare. = jya-kke′	no translation
without sun	kokkρawe‵. = dae′kkρawe‵	no translation
Spring		
little heat	kollu-kkρage‵. = kollu-kke‵zje′n	on the ice
melting of snow	uallè‵lè‵. = l'ukkie‵	thaw
germination	toon- = toon- goden-wide‵	no translation
Summer		
middle of summer	inpe′. = chine′	
Autumn		
first: falling of leaves, or	ti-go'tlan. = na-od'ede′kkρa	fine earth earth becomes cold
second: falling of snow	t'u-yan-t'a-godit'e′n. = ti-got"enè‵	in little lakes the water freezes earth is dead

The names for the seasons among all the tribes are descriptive, depending in some measure on the type of culture the particular tribe represents. A few examples taken at random will make this clear. Among the Kiowa we have:[54]

1. sai′gya, or säta: winter.
2. so′n pa′te: grass springing; also: a′se′gya—an archaic term the meaning of which is lost.
3. pai′gya, or pai′ta: summer (connected with the name for the sun).
4. pao′ngya: autumn (the name seems to refer to the thickening of the fur on the buffalo); also: ai′deñ-gyägu′ädal-o′mgyäi: when the leaves are red.

[52] Sapir (ms.).

[53] Petitot, 1876*a*. The seasons are found in the "Dictionnaire" in alphabetical order, under the French names for the seasons.

[54] Mooney, 1898, 366.

The Nootka seasons are:[55]

1. t'łaq^{e}ci tł: it starts growing (early spring).
2. t'lo·p'i·tch^{e}: hot season (early spring and first part of summer).
3. aitch^{e}citł: it comes near to rutting season (approximately August and September).
4. ai'yi·te h^{e}: rutting season (early fall).
5. ai tch^{e}'ato·'is: rotten fish float back down the river (late fall).
6. t's o'ite h^{e}: wash season (when everything is washed by rain and snow).

The Occaneechi:[56]

1. budding or blossoming.
2. ripening.
3. midsummer.
4. harvest or fall.
5. winter.

As with us the seasons are rather vague and indefinitely marked. The length also varies from year to year with the occurrence and duration of the natural phenomena which mark the seasons. How close this dependence on the phenomena is, is well illustrated by LeClercq's account of the Miemac:[57] "They say that the spring has come when the leaves begin to sprout, when the wild geese appear. . . . They recognize that the summer has come when the salmon run up the rivers, and the wild geese shed their plumage. They recognize that it is the season of autumn when the water-fowl return from the north to the south. As for the winter, they mark its approach by the time when the cold becomes intense, when the snows are abundant on the ground, and when the bears retire into the hollows of the trees."

The calendars of the Eastern Cree and Northern Saulteaux are evidently closely related. Interesting variations have developed in the names and number of the seasons recognized. The Eastern Cree divide the year into eight seasons; the Northern Saulteaux recognize but six, four of which bear the same names as the corresponding periods of the Cree; the others have names similar to two in the Cree list.[58] The actual lists follow:

[55] Sapir (ms.). This list is from the T'sica-'ath^{a} tribe. Another informant, from the Ho·pa tcas'ath^{a} tribe, gave only four seasons corresponding to our four, and omitting the third and fifth of the above list. These are probably of only secondary importance, although the Tsica-'ath^{a} informant insisted on the six seasons.

[56] Mooney, 1894, 34. The native terms are not given.

[57] Le Clercq, 137. All information concerning the seasons is similar to this.

[58] For the Eastern Cree see Skinner, 1911, 48; for the Northern Saulteaux, *ibid.*, 147.

Eastern Cree.	*Northern Saulteaux.*
1. sigun: "spring before open water."	1. sigun "spring."
2. miluskamin: "spring after open water and before summer."	2. min'okomin: "between spring and summer."
3. nipin: "early summer."	3. nipin: "summer."
4. me'gwanipmi: "middle of summer."	
5. tûkwagun: "early autumn."	4. tukwa'gin: "autumn."
6. mīgîskau: "late autumn."	
7. pīchīpīpun: "early winter, just before frost."	5. pit'cipipoun: "Indian Summer."
8. me'gwapīpun: "late winter."	6. pipoun: "winter."

The Southwestern tribes recognize but two seasons.[59] Outside this area, comparatively few tribes divide the months into two groups. Close to regions of the two-season count we may find four, five, or six seasons recognized by tribes of very similar culture. Where the two-season count appears, it may mark the natural periods of cold and heat—as among the Haida, Maidu, Navaho, Bannock, Blackfoot, Arikara, Kiowa, and Choctaw; or the division may be determined by the solstices, as seen among the Bella Coola, Makaw, Juaneño, Hopi, Zuñi, and Hano.

The Copper Eskimo[60] do not recognize "months" but merely divide the year into five seasons which vary in length from year to year:

1. oqiuq: (winter), middle of November till the end of February, when the sun is either very low in the sky at noon, or does not rise at all.
2. opuŋyaqsaq: (early spring), from the beginning of March until the latter part of April, when the snow first begins to melt.
3. opuŋyaq: (spring proper), from the first melting of snow until the land is bare of snow.
4. auyaq: (summer), when the days are warm, the snow is off the ground, and the lakes are free of ice.
5. oqiuqsaq: (autumn), when the weather becomes cold again, the lakes freeze over, and the land begins to show signs of winter.

[59] The Jemez distinguish the four seasons; the Tewa also speak of a spring and an autumn but they are not considered real seasons (Harrington, J. P., 61). They are doubtless obtained through contact with civilized peoples. Other instances of borrowing are found among the Blackfoot and the Crow (Wissler, 44; Lowie, 242). Among the Blackfoot the months are definitely divided into a summer and a winter series.

[60] Jenness, ms.

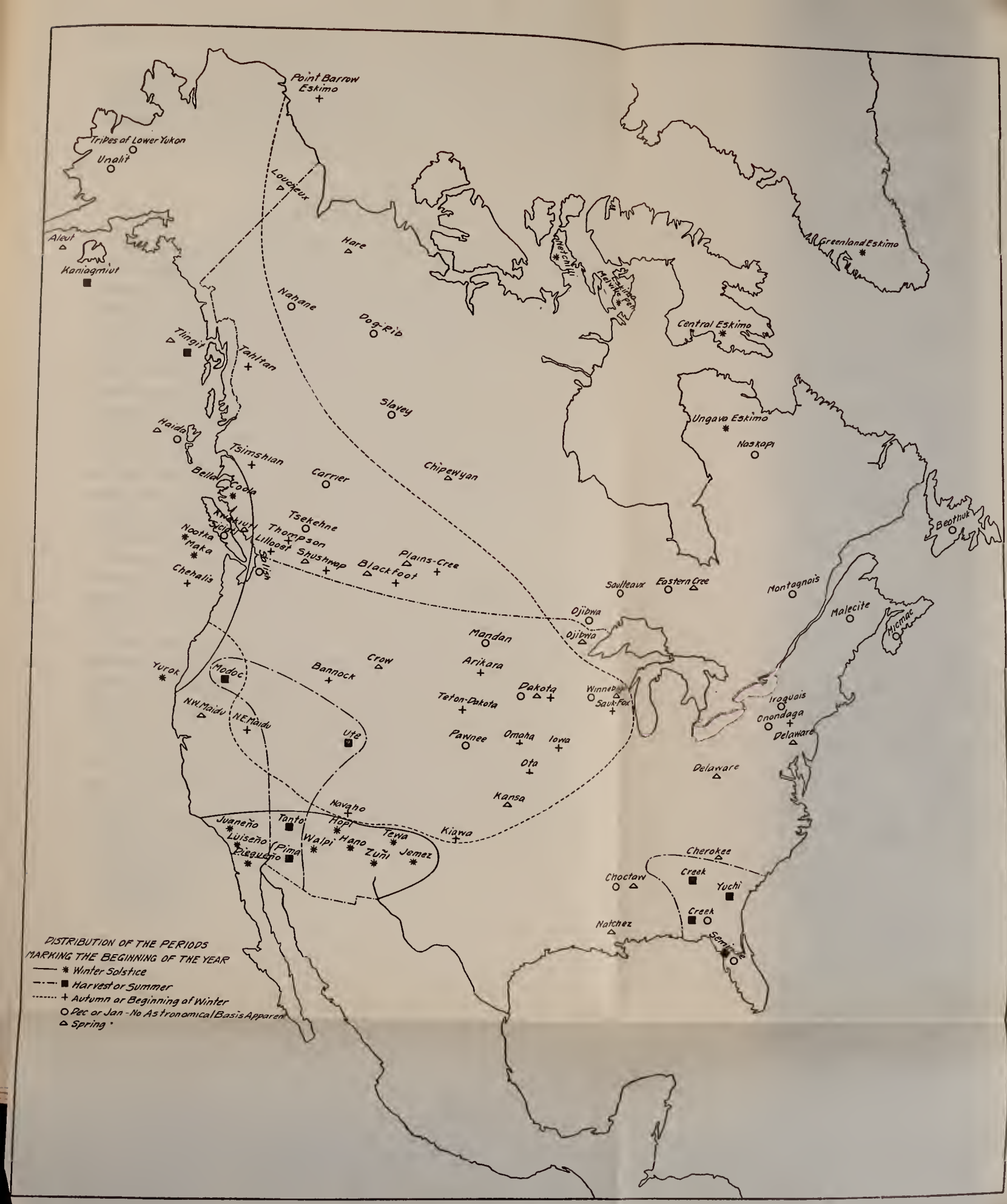
THE YEAR

The year may be regarded as the interval between recurrent events, since no attempt is made to compute its length in days, and since the number of moons is somewhat uncertain in the native mind. Either solar or terrestrial events may determine the inception of the year. The winter solstice forms the astronomical basis, but the terrestrial events vary in kind and time of occurrence, although springtime and the beginning of winter seem to be preferred. Climatic conditions, the rutting season of various animals, and the harvest time, furnish good starting points. This variation indicates that little stress is laid upon which of the months begins the year-count, each tribe or even family deciding which event shall mark the first month of their year. For the distribution of the various periods which are regarded as the first of the year, see map 2.

The usual designation for "year" is "winter." The Seminole use the term "summer";[61] the Yokuts, "world." The Nootka have distinct suffixes for "year" and "season"; that for year "-q'ʾitcḥ^{a}," is, however, a derivative of that for season, "-ʾitcḥ^{a}";[62] the Wyandot use the term "sĕya'ʔsdɛ'ɛgya'," (again it overtakes).[63]

The Indian is usually unable to keep account of an interval of more than two or three years; after that the reckoning becomes vague, and if he is obliged to reckon by years he often becomes sadly confused. The Eskimo of Melville Peninsula often repeat the term "alranee" in order to express several years, or use the word "oonooktoot" to mean a great many.[64] The Point Barrow Eskimo say "ai-pa'-ni," which may mean two years ago, but as readily denotes twenty. "Al-ra'-ne" is used for very indefinite times. The future is referred to by the term "nana'ko nana'kun" (by and by); or, some reference may be made to an expected event, such as the going of the ice.[65] Although it is often loosely stated that the Indian could tell his age by the expression "so many winters had passed over his head," or that he was so many winters old, this expression is no doubt developed through contact with civilized peoples. The expression more in keeping with the Indian calendric systems is that found among so many tribes: "I was so large when a certain event happened." This event may be a year of famine, a year of some epidemic, the growth of a

[61] MacCauley, 524.
[62] Sapir (ms.).
[63] Barbeau (ms.).
[64] Parry, 556.
[65] Simpson, 261; Murdoch, 43.



Map 2. Beginning of the Year.

particular tree or grove, or some remarkable exploit. The Hupa judge one's age by the condition of the teeth. Such vague statements or references as these are probably as near as the Indian, of himself, ever came to considering his age.

METHODS OF CORRECTION

The Indian seems vaguely aware of the discrepancy between his lunar reckoning and the solar year. Many tribes apparently have no method of correcting their year count. In the calendars which have only twelve months, the Indians may unconsciously lengthen a month when it does not tally with the event for which it is named, or insert another period. That the discrepancy was felt is shown by the frequent references in the literature to discussions and quarrels as to which month it is, or ought to be at a given time. The arguments apparently continue in such cases until, through a comparison with the natural phenomena, matters are set right. Among the Yurok, the time for gathering acorns, "Nohsho," settles all disputes arising from the fact that some individuals try to count thirteen moons, while others count only twelve.[66] Similar difficulties and methods of correction would probably be found in practically all the calendars if full information were available.

There is no definite distribution of the tribes using twelve and thirteen moon calendars respectively. The Pawnee are said to have twelve and thirteen months alternately—the intercalary moon being inserted at the end of summer.[67] The Central Eskimo have quite an exact system, though simple and depending on easily recognized phenomena. When the new moon and the winter solstice coincide, the month "siringilang" (without sun) is omitted. This "month" is a period of indefinite length;[68] by the omission of it their count is kept fairly exact, since they have thirteen months to the year.

The Ahtena[69] and Luiseño,[70] who have fifteen and sixteen divisions of the year respectively, and the Eskimo of the Ungava District,[71] have disregarded the lunations, and merely observe so many events.

[66] Kroeber (ms.). That "Nohsho" is not the beginning of the year, even though it regulates the month series, is shown by the numeral nomenclature, which makes this the eleventh month.

[67] Dunbar, 744.

[68] Boas, 1888, 644.

[69] Baer, 100.

[70] Du Bois, 162.

[71] Turner, 211.

When the year begins with some particular natural event, say the harvest of some fruit, it is difficult to see how the moons fit in, unless only the approximate time of the harvest is taken—varying a little from year to year until the discrepancy becomes noticeable. In that case perhaps another month is added, or the moon count may be suspended for a time. The Malecites[72] usually divide their year into twelve lunar months; but when the moons became sufficiently far behind the seasons, they inserted a moon between July and August which they called "abonamwikizoos," or "let this moon go by."

The majority of the Northwest and Northern Plateau tribes have a definite intercalary period, but its exact relation to the lunar periods is not clear. The Bella Coola have a non-lunar period, of approximately six weeks at each solstice. Five months are counted between these periods;[73] but in what manner the regular count is resumed, the evidence fails to show. The Kwakiutl call the winter solstice "ts!ā'tap!a" (split both ways).[74] It serves as a period of adjustment and since their solstices are carefully observed, no really serious error can occur. The Haida have a "between month"[75] which is probably omitted when necessary. Often among the Northern Plateau peoples, the latter part of the year is a period of variable length called the "remainder of the year." This "balance" usually covers a period roughly corresponding to our July–October—the year count beginning with the first of winter, or the rutting season of some wild animal.[76] In addition to the Plateau tribes, the StsEē'lis[77] consider the autumn as a period of variable length. The name applied to this interval by the StsEē'lis, "nmtsémuksEl," signifies the coming together or meeting of the two points or ends of the year; the latter part is often called "tEm yā'auk," or the time of the dying of the salmon. The Northeastern Maidu may also recognize a "remainder of the year," but it is doubtful. Dixon[78] says: "Only nine moons or periods were known, at least no others seem to be known at present." He fails to correlate these periods with our months. The month names of these Maidu reflect the gradually changing natural events,

[72] Mechling, ms., from Vetromile: Abnaki and their History (81-83). Vetromile gives data from a tribe which Mechling believes to be Malecites.

[73] Boas, 1898, 41.

[74] Boas, 1909, 413.

[75] Swanton, 1903. Its place in the calendar is indefinitely fixed—in one division it comes as a separate month between the summer and winter series; in another, as a regular month, the second of the summer series; in a second account of the first division it comes as the fifth of the summer series.

[76] Teit, 1906*a*, 223; 1900, 237; 1906*b*, 517.

[77] Hill-Tout, 1904*b*, 334.

[78] Dixon, 317.

but there are two distinct breaks in the series. The first break occurs between "sĕ'minim pō'ko" (seed moon), the first month of the year count, and "tēm tsā'mpautom pō'ko" (little tree freeze moon), the second month. The other irregularity occurs between "bō'ĕkmen po'ko" (trail breaking open) and "külo'kbĕpinem po'ko" (a referenee to the extreme heat, for the explanation is that old women—külo'kbĕ—are said to die of the heat this month). Between these two months there are only two other periods, one referring to the spring; the name of the other is untranslated. It seems safest to regard this Maidu ealendar as fragmentary.

The Aleuts[79] have named one month tugid'igamak, or the "big month." It eorresponds to our January, and the explanation is that it is longer than the others. It seems peculiar that it should be the eleventh of their year count.

In the Southwest, at least among the Pueblos, the solstices, determined by eareful observation, divided the year into two series of six months each. The method of adjusting six lunations to a half year is unknown. The few days whieh are unaecounted for were probably disregarded. They may have been oeeupied in observations of the sun's position, and in waiting for it to rise at the proper point; for the Zuñi[80]—and probably the other Pueblo Indians—like the Nootka, believe the sun to rise at the same point for about four days, the last of whieh is the solstiee.

As for the ealendars of the Indians of other areas, there was no definite provision for interealation. The only indieation that the discrepaney was felt, is the occurrenee of the thirteen-month year.

TYPES OF CALENDARS

If we use the nomenelature of the months and the basis of the year as determining faetors, the ealendars of the Indians fall into three elasses:

1. Deseriptive.
2. Astronomical.
3. Numeral.

Within eaeh type there are minor variations, and even some overlapping between types where the tribes are elosely eonnected, geo-

[79] Wenjaminow, in Schiefner, 329. The "big month" is common among many tribes, but there is no specific statement that its name elsewhere refers to the length of the period.

[80] Stevenson, 108.

graphically or culturally. There seems to be no definite linking of the variations with each other, or with any particular feature of the three types. In this general classification a number of tribes are omitted because the evidence concerning them is insufficient to warrant a definite grouping; but in no case does the information available conflict with the classification made. Map 1 shows the distribution of the three types.

DESCRIPTIVE TYPE

It would be difficult to find a more simple form of time-reckoning than this. The calendar consists merely of descriptive designations for the lunar periods, the count commencing with some natural event of importance to the Indian. There is no evidence of the use of astronomical knowledge either for rectification of the year count or for the annual starting point. The Mackenzie[81] and Northeastern[82] and Southeastern Woodland areas, know this type only. In the Southwest it occurs among the Pima and the Navaho; but these are "border" tribes which differ in other respects from the intensive Pueblo form of the Southwestern culture. It is interesting to note that these two tribes have a simple calendar and are apparently uninfluenced by the complex methods of the neighboring Pueblos. The Pima begin the year at the time of the saguaro harvest, about the first of June.[83] The beginning of winter (about October) marks the first of the Navaho year.[84] The Maidu of California, who also have this type of calendar, commence their year with the spring when the flowers bloom, or the tassels appear on the oaks.[85] According to one account,[86] even the Tlingit of the Northwest Coast use a purely descriptive nomenclature for their months.

In simple calendars such as these, there is no uniformity in the choice of terrestrial events for names; they refer to the customs of man, the habits of wild animals or birds, climatic conditions, or the ripening of various fruits and berries. The beginning of the year varies also.

An intermediate stage between the purely descriptive and the astronomical classes of calendars is to be recognized in those which

[81] Except the Ahtena, who have numeral designations, and therefore come under the third class. This exception is not strange, for the Ahtena are geographically close to the Northwestern tribes where numerals are common.

[82] Including the Plains Cree.

[83] Russell, 1905, 45.

[84] Franciscan Fathers, 58.

[85] Kroeber, ms.; Dixon, 217.

[86] Petitot, 1876*b*.

include thirteen or more periods in the yearly count. The larger number of moons suggests a feeble attempt to correlate an essentially lunar calendar with the solar year. Since this form of reckoning does not definitely show an astronomical basis, it is regarded as a variation of the purely descriptive type—unless additional features place it in one of the two other classes. This thirteen-moon descriptive subtype is confined to no particular area, but occurs sporadically.[87] Thirteen-moon calendars are also found among tribes using the other types.

ASTRONOMICAL TYPE

In the Northwest and Southwest areas, and among several Eskimo groups, the descriptive system is used in combination with the recognition of the solstices.

The solstices may mark the division of the months into a summer and a winter series, as among the Bella Coola,[88] Makah,[89] Luiseño,[90] Diegueño,[91] Zuñi,[92] and Hano;[93] or merely the beginning of the year, as among the Greenland,[94] Ungava[95] and Central Eskimo,[96] the Nootka,[97] and Tewa and Jemez;[98] or, one or both solstices may be non-lunar periods for the purpose of regulating the year, as in the calendars of the Aleut,[99] the four Kwakiutl tribes[100]—Nimkish, Koskimo, Mamalelekala, and Nakwartok—and the Bella Coola.[101]

The rising of the constellations apparently marks the beginning of the year among the Kaniagmiut Eskimo[102]—their first month being named "kabjaxgun," or "the Pleiades begin to rise"; their second, "tugaxgun" or "tagegun," "Orion rises"

[87] The following are a few of the tribes which divide their year into thirteen or more periods, apparently without an astronomical basis: Ahtena, Plains Cree, Kansa, Blackfoot, Chippewa, Natchez, and Choctaw.

[88] Boas, 1898, 41.

[89] Swan, 91.

[90] Du Bois, 165.

[91] *Idem.*

[92] Stevenson, 108.

[93] Fewkes, 1899, 260, 275.

[94] Cranz, 211.

[95] Turner, 202.

[96] Boas, 1888, 597; Hall, 323.

[97] Sapir (ms.). Sproat, 123, indicates a recognition of both solstices, but not as marking the beginning of the year

[98] Harrington, J. P., 61.

[99] Wenjaminow, in Schiefner, 329.

[100] Boas, 1909, 412.

[101] Boas, 1898, 41.

[102] Dawydow, in Schiefner, 330.

Month designations referring to the solstitial ceremonials often replace the descriptive names. This ritualistic nomenclature has its fullest development among the Hopi,[103] who name each of their moons from the chief ceremony of each period. On the Northwest Coast one or more months are sometimes named from ceremonials, or ceremonial implications; but never the entire series.

It is by no means strange that the Eskimo should notice the winter solstice and celebrate the sun's approach, for the arrival of the luminary means the promise of a radical change in their life, affecting every phase of their activities. The tribes of the North Pacific Coast on the other hand are essentially canoe using peoples. Here the winter solstice attracts attention because of the storminess of the period. We have evidence that its observance is of economic importance among the Nootka,[104] who in order to gain the greatest success in their hunting and fishing, plan a series of 'o·samte' ceremonies for the year, as already described. The general similarity in complicated ceremonialism, the means of sustenance, and other phases of culture throughout the North Pacific Coast, indicate that in this entire area economic conditions coupled with magico-religious beliefs are fundamental to the importance attached to the solstices. This also applies to the Southwest. Here we have an agricultural people, with rituals associated with the sun's return and departure and with the growth of the crops.

NUMERAL TYPE

This type of calendar comprises those counts in which numeral designations have partly or wholly replaced the descriptive terms. It occurs only among the Northwest tribes and closely connected peoples[105]—the northern Plateau and northern California tribes, and the Eskimo of southern Alaska. The Yurok alone use the numeral designations with a definite astronomical basis; the months, numbered to the tenth (after which descriptive terms are used), begin with the winter solstice.

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[103] Fewkes, 1897, 254ff.; 1900, 631ff.; 1903, 20–23.

[104] Sapir (ms.).

[105] Ginzel, 148, gives a vague reference to "der dänischen Forschungs-expedition von 1886" in which he claims that the Eskimo of East Greenland have only numeral designations for their months. Another case of the use of numerals—although not in connection with the month series—is that of the Northwest Coast Kaigani who, according to Radloff (307), number their days.

Only the StsEclis[106] combine numeral and ritualistic designations in the same series. The Kaniagmiut[107] and Aleut[108] have merely a trace of the numerals; the former name one month "agwinyx," or the sixth; the latter number their first month, "kadu'gix," but sometimes apply a descriptive name. The Ahtena[109] recognize fifteen small periods in the year, with only numeral appellations. The Tlingit, according to one account,[110] designate their tenth and eleventh months by the numerals, although descriptive terms are also used. The Chilkat, a division of the Tlingit, "are said to count all their months, instead of naming them."[111] The Lillooet, Shushwap, and Thompson Indians (Lower Thompson and Spence's Bridge bands) number the months up to the tenth or the eleventh;[112] sometimes descriptive terms are used with these, and in many cases actually replace them. The Lower Thompson make less use of the descriptive names. Among all the Thompson tribes, the period immediately following the numbered months is of variable length, and termed the "remainder of the year." The Klamath calendar counts over the fingers of the hand[113]—a method that seems to be a modification of the numeral one. The Eastern Pomo and Huehnom introduce a few finger-named moons among their descriptive ones. Of the Blackfoot, Wissler says: "There is little consistency in the nomenclature of the moons . . . our information implying that they were considered more by numerals than by names." He follows this statement with a list of descriptive terms, divided into a summer and a winter series.[114]

SIMILARITIES BETWEEN THE TYPES

The descriptive element appears in practically all North American calendars. Of the astronomical type, the Haida and the Tsimshian are entirely descriptive except for the occurrence of a "between month."[115] In the numeral groups the descriptive names occur either in place of or along with the numbers. Only the Ahtena and Klamath have the entire series of months numbered or "fingered." The Aleut

[106] Hill-Tout, 1904*b*, 334.
[107] Wenjaminow, in Schiefner, 330.
[108] Dawydow, in Schiefner, 329.
[109] Baer, 100.
[110] Swanton, 1908, 426.
[111] *Idem*, 427.
[112] Teit, 1906*a*, 223; 1900, 237; 1906*b*, 517.
[113] Gatschet, 1890, 74–76.
[114] Wissler, 44.
[115] Even though the Tsimshian and one group of the Haida have only twelve moons, including the "between month," they have been classed with the astronomical type.

and Kaniagmiut each have but one month numbered; the former apply a descriptive name to the same month.

The occurrence of a thirteen-moon year shows some attempt to solve the real problem of a calendar; and is but a little less refined than the scheme of a "between month." As already stated, this thirteen-moon count is here construed as a variation of the descriptive type, since the method of intercalation is vague and apparently based upon no astronomical idea. The calendars of the two other classes often contain thirteen or more moons.

Many of the calendars in which the moons are numbered—either wholly or in part—close the year with a non-lunar period of variable length, which has no relation to the solstices. In the solstitial years of the Bella Coola and Kwakiutl, the non-lunar periods occur at the solstices; the former use a period of about six weeks at each solstice.[116] In the case of the Kwakiutl the name of one moon sometimes covers two lunations; the adjustment is in midwinter.[117] The "remainder of the year" or indefinite period of adjustment occurs at different seasons among the several tribes. Among the Thompson, Lillooet, and Shushwap,[118] the interval begins some time in September and continues into November. The eleventh month of the Aleut calendar is somewhat longer than the others; it comes about January, and is called the big month, "tugid'igamak."[119]

The distribution of the tribes using the numeral type of calendar shows a remarkable grouping around the North Pacific astronomical center, in which the calendars begin with the winter solstice, but the numeral calendars are not solstitial—except among the Yurok. The Tlingit begin the year in August,[120] with the tenth and eleventh months (the only numbered ones) occurring in May and June. The Aleut have the first month numbered. It comes in March.[121] The sixth month of the Kaniagmiut falls in January.[122] The Chehalis[123] number the months from the fifth to the tenth inclusive, a period corresponding to our February–July, so that their year begins about October. The Thompson, Lillooet, and Shushwap[124] commence their year-

[116] Boas, 1898, 41.

[117] Boas, 1909, 412.

[118] Teit, 1906*a*, 223; 1900, 237; 1906*b*, 517.

[119] Schiefner, 1856*b*, 329.

[120] Swanton, 1908, 425–427. The Wrangell informant, who gave no numeral designations, said the year began in January.

[121] Schiefner, 1856*b*, 329.

[122] Schiefner, 1856*a*, 330.

[123] Hill-Tout, 334.

[124] Teit, 1906*a*, 223; 1900, 237; 1906*b*, 517.

counts in November, numbering the months up to the tenth or the eleventh. Descriptive names are applied to some. Although most of the Shushwap entered their winter houses (the event which marked the beginning of the year) a month earlier than the Thompson Indians, they began the year-count with the same month, and called it by the same name referring to the occupation of the winter houses.

CENTERS OF DEVELOPMENT

From this review of the types of calendars it appears that there are two definite areas in which relatively complex systems are in use: the North Pacific Coast and the Southwest; and a third with a calendar which is quite simple but nevertheless worked out on an astronomical basis: that of the Eskimo. Beyond the influence of these centers the simplest methods prevail—variegated by local conditions and colored more or less by the general habits of each people. The elements which indicate a higher development of the calendric systems are as follows:

1. A recognition of the solstices, and their use in the calendrical system.

2. A definite intercalary period.

3. The division of the year-count into two series, a summer and a winter series of months.

4. The naming of the moons by numerals and after ceremonies.

Since these features have been previously discussed, only a few general remarks are necessary here, in order to compare the several areas.

Both in the Northwest and Southwest the solstices are assigned a definite place in most calendars, and all the Eastern and Central Eskimo—except the Copper Eskimo[125]—base the beginning of the year on the solstitial period.

A definite interealary period appears only among the North Pacific Coast and Northern Plateau tribes. It may take the form of a "between month," a period named for one or both solstices, or a variable "remainder of the year," each of which has been discussed elsewhere. Of the Eskimo, the Central tribes alone have a definite period of interealation or rather the opposite; but even this depends upon an easily recognized phenomenon: as explained above, their month "siringilang" is omitted whenever the new moon and the winter solstice coincide.

[125] Jenness (ms.).

The division of the year into two groups of months is common to the Northwest and Southwest, but since it occurs in several other places,[126] little importance can be attached to it, beyond the fact that in combination with other factors it may help build up a more advanced system. The Southwestern tribes use the two series of months with the solstices as pivots, and sometimes there is a repetition of the winter month names for the summer months.[127] In these matters the tribes of Southern California have probably been influenced by those of the Southwest. The Diegueño repeat the month designations;[128] the Juaneño[129] and Luiseño,[130] however, fail to do so. In the Northwest the repetition of the month designations within the year never occurs; the summer and winter groupings occur in comparatively few tribes, among some of which they correspond with the natural seasons.

We have already seen that the numeral nomenclature is confined to the Northwestern and closely related tribes; and that a ceremonial nomenclature is common to both the Northwest and the Southwest tribes—although more highly developed in the latter. The nature of the ceremonials differs, reflecting the type of culture. In the Southwest the ceremonies are symbolic of weather conditions favorable to the agricultural pursuits, and of the planting, growth, and harvest of the crops. The Northwest tribes have magical rites suited to the pursuits of a seagoing people.

In summary, the regional types of calendars may be defined thus:

Northwest: solstices pivotal; months in two series; intercalation of non-lunar period; months often numbered, occasionally named for ceremonies.

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[126] Other tribes in which the summer and winter series of months are found:
Maidu (Kroeber, ms.).
Bannock (Clark, 260).
Blackfoot (Wissler, 44).
Arikara (Maxmillian, 1906, 393).
Choctaw (Byington, 146).
Kiowa (Mooney, 1895–96).
In all these cases the division is seasonal.

[127] Fewkes, 1897, 258. Fewkes gives the Hopi reason for the repetition of the month names—an interesting hint dropped by a priest: "When we of the upper world are celebrating the winter Pa moon, the people of the under world are engaged in the observance of the Snake or Flute, and vice versa." These ceremonials of the two worlds are synchronous. "That is the reason we make the Snake or Flute pahos during the winter season, although the dance is not celebrated until the corresponding month of the following summer." Compare the list of Kiowa months in Mooney, 1898, 365–370.

[128] Du Bois, 162; Gifford, 1918.

[129] Boscana, 303–304.

[130] Du Bois, 162.

Southwest: solstices pivotal; months in two series, sometimes with duplicating names; designations seasonally or ritualistically descriptive.

Central Eskimo: year begins with winter solstice; sometimes correction of lunar series at this period; month names descriptive.

Remainder of the continent north of Mexico: no use made of solstices; no intercalation or system of correction; month names descriptive of seasonal events, very rarely numeral or of ceremonial significance; rarely in two series.

DIFFUSION

There are certain similarities in the month designations used by the various tribes, due to similar modes of life, climatic conditions, or to diffusion. References to cold and heat, spring and autumn, animal, bird, or fish life, wind, fruits and berries, are found in practically all calendars. A few instances will show the peculiar forms taken among different tribes:

Native term	*Translation*	*Tribe*
chup'-wīk	mush ice forms (October–November)	Eskimo of Lower Yukon
vœnan l'e'n tehitchoô	month dog is cold (January)	Loucheux
ghar u wue sa	rabbit eats quickly (December) (meaning the days are getting short)	Tahltan
tl'in-tche'-te'w'è	tail of the dog stretches out to the fire (January)	Hare
Ho^{a}'ga umubthi ike	snow drifts into the tent of the Ho^{a}ga (January)	Omaha
(Native term not given)	freezing rivers (November)	Mandan
kakakano	pattering showers (February)	Maidu
(Native term not given)	rise of waters (April–May)	In Southern California
teokiapīk	rainy month (July or August)	Pima
su'dlivwiñ	time for working, i.e., sewing (October)	Eskimo of Point Barrow
ku'-bvī-jûkh-pûg-û-wīk	time for setting seal nets (October)	Unalit
nłts'ī'ts'ôsi, or nłch'ī'ts'ô'si	light or slender wind (November)	Navaho
yā'ishjā'-shch'īli	I insert the small grains (June)	Navaho
ses-ka-hah	sun goes for long days (June)	Onondaga
vœnan uan e'ne'itchi te' ey	month of the long day (July) (day continued)	Loucheux
ka'ui tso'n po'ko	ground burning moon (July)	Maidu
(Native term not given)	moon of the nose[131] of the little serpent (November)	Arikara

[131] This use of "nose" is perhaps explained by the Thompson Indian calendar "tenth moon," or, laxaks, "first of the run," or "nose" of ascending fish. Teit, 1900, 237.

In addition to such general designations there are others widely distributed over an area where a particular phenomenon occurs. References to berries are numerous throughout the north-central part of the continent; a salmon nomenclature, in Alaska, the North Pacific Coast, and the Northern Plateau; wild rice designations, in the vicinity of the Great Lakes among the tribes who to a great extent depend upon the rice for food; sore eye names, from the northern part of the Mackenzie region down through the Plains. But it is remarkable that comparatively few tribes are represented in the sore-eye nomenclature, and that other hunting tribes, living in localities which have severe winters, never mention sore eyes. References to birds, their migrations, eggs, and moulting, are found chiefly among the northern peoples, although goose and eagle nomenclatures are widely scattered. These designations are absent from the California area, even though bird life must have been of great importance to the Indians of this region.

An excellent example of diffusion is shown by the numeral designations: Aleut, Kaniagmiut, Ahtena, Tlingit, Chilkat, Stsēē'lis, Shushwap, Thompson, Lillooet, Modoc, and Yurok.

Underground houses were common among the Northern Californians and tribes inland of the North Pacific Coast, but only the latter have references to the underground house in their month designations. Even here they occur among but four tribes: the Thompson, Lillooet, Shushwap, and Chilcotin.

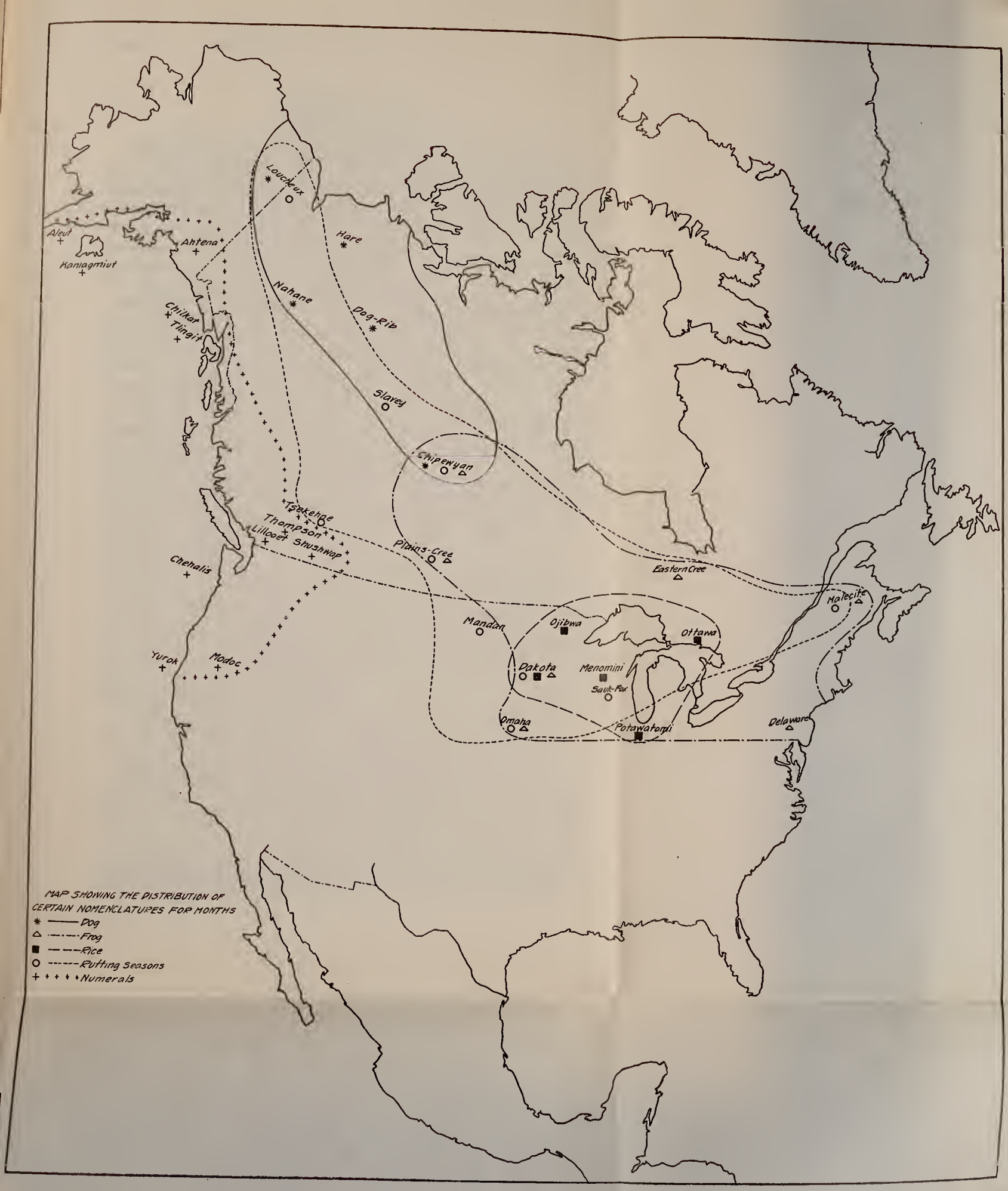
The rutting seasons of the various wild animals give names to the months among the hunting peoples of the Plains, Mackenzie, and Plateau regions. The Osage calendar has very few other names.[132]

Often occurrences not affecting native life occasion moon names, as is shown by the frog nomenclature. The frogs, whose croaking in the springtime is of course noticeable almost everywhere, are mentioned by the Delaware, Malecite, Eastern Cree, Montagnais, Plains Cree, Dakota, and Omaha.

Many other examples might be given, but these will show that local influences play an important part even in the centers of higher development.

Map 3 reviews the distribution of several specific elements of month designations.

[132] Maximilian, 1906, 300.



Map 3. Some Month Names.

CALENDAR LISTS

ASTRONOMICAL TYPE

The following tribes use the astronomical type of calendar: Bella Coola, Diegueño, Haida (Masset and Skidegate), Hano, Hopi, Jemez, Kwakiutl (Koskimo, Nakwartok, Nimkish, and Mamalelekala), Luiseño, Makah, Netchilli, Nootka, Piskwaus, Salish, Sĭ'eiatl, Tewa, Tusayan, Yurok, and Zuñi. For the Yurok month list see the numeral type of calendar. The Luiseño and Diegueño lists are not given, for it is impossible to correlate them with our months.

Netchilli (Amundsen). *1. kapidra, it is cold, the Eskimo is freezing. 2. hikkernaun, the sun is returning. 3. ikiakparui, the sun is ascending. 4. avonivi, the seal brings forth her young. 5. nechyialervi, the young seals are taking to the sea. 6. kavaruvi, the seals are shedding their coats. 7. (first part) noerui, reindeer bring forth their young; (second part) ichyavi (I), birds are brooding. 8. ichyavi (II), the young birds are hatched. 9. amerairui (I), the reindeer is migrating southward. 10. amerairui (II). 11. akaaiarvi, the Eskimo lay down food depots. 12. hikkern illun, the sun disappears.

Haida, Masset (Swanton). 1. tān qoña's, black bear month. 2. xīt gias, laughing goose month. 3. wīt gias, russet-backed thrush month. *4. ʿa'nsga-i la' qoñas, month berries are forming; or, q!a'gan gias, halibut month. 5. wa'aɪ gwalga-i, means weather is still somewhat cold. 6. qoñqō'ns, great month. 7. s'ān gias, killer whale month. (Because the noise caused by the stripping of the bark from the cedar trees is like the blowing of the killer whales). 8. k!ī's'als, said to have received its name from the fact that animals begin to get fat. 9. qA'lga qoña's, ice month. 10. q!e'daq!edas, between month. 11. djā qoña's, digging month. 12. qō'ao giā'ña', standing to defecate. 13. 'Igitu'n qoña's, goose month.

Haida, Skidegate (Swanton). 1. sqaIgōñ gida's, young fish. 2. sqaIgō'ñ q!ā'-ias, old fish. *3. tā'xet gias, sockeye month. 4. Gē'tga q!ā'-idas, between month. 5. wīt gias, russet-backed thrush month. 6. Gān Galā'n qoans, many ripe berries. 7. wāl Gal qoans, many potlatches. 8. halwa'l qoans, means that many salmon were then dried. 9. xo'lGao qoans, means that salmon jerk about in creeks to let eggs out. 10. q!ā' GAna gias, probably many halibut were then taken. 11. k!is'als, said to be a contraction of the word for empty entrails (refers to animal intestines in which salmon eggs and grease were kept). 12. qoñ giā'di gā'das, signifies that food is almost gone.

Tsimshian (Boas). 1. the intervening month. 2. spring salmon month. 3. month when olachen is eaten. 4. month when olachen is cooked. 5. (?). 6. egg month. 7. salmon month. 8. humpbacked salmon month. 9. (?). 10 spinning top month. *11. falling leaf month. 12. taboo month.

Kwakiutl, Nimkish (Boas). 1. wa'ɛ'nx, spawning season. 2. tsux·usɛ́m, first olachen run. *3. q!wa'lɛ'nx, raspberry sprouting season; or, 'mā'waɛL!Enx, olachen fishing season. 4. q!Emdzɛk!unx, raspberry season. 5. gwā't!Enx, huckleberry season. 6. nɛk!u'nx, sallalberry season. 7. wulē'ts!Enx, season

* The moons are throughout given in the order which they occupy in our calendar year. That is, 1 is approximately January and 12 December. The asterisk denotes the moon regarded by the tribe in question as beginning the series or opening the year.

of? 8. xE′msxEmsdē, past, [that is empty] boxes? 9. lē′xEm, wide face. 10. ʿmEgwā′baʿē, round one underneath, that is the moon after "wide face." 11. gwā′xsEm, dog salmon mouth. 12. q!ā′xʿala, cleaned, that is of leaves. 13. ts!ā′tap!a, split both ways (the winter solstice).

Kwakiutl, Mamalelekala (Boas). 1. ʿmāʿʿwâlits!Enx, season of floods? 2. ʿmāʿʿmawaēʿLʿEnxēʿnâ, near to olachen fishing season. *3. tE′mk·ǃînx, tree sprouting season. 4. q!Emdzek!unx, raspberry season. 5. gwā′t!Enx, huckleberry season. 6. nEk!u′nx, sallalberry season. 7. wulē′ts!Enx, season of? 8. xE′msxEmsdē, past, [that is empty] boxes? 9. lē′xEm, wide face. 10. ʿmEgwā′bâʿē, round one underneath, that is the moon after wide face. 11. wulē′ts!Enx, season of? 12. q!ā′xʿala, cleaned, that is of leaves. 13. ts!ā′tap!a, split both ways (the winter solstice).

Kwakiutl, Nakwartok (Boas). 1. waʿE′nx, spawning season. 2. ʿnō′la, elder brother. 3. tē′kwabâʿē, under, that is under elder brother. 4. ō′dabâʿē, next one under, that is next one under elder brother. *5. sEmx·usEm, trying oil moon. 6. nE′mnāla, sockeye month [?]. 7. aā′tsaʿya, between good and bad weather [?]. 8. gō′ʿlEnx, raspberry season. 9. ʿnāʿʿnōlasnā′qag·ila, eldest brother. 10. hēlats!a, right moon? 11. xē′kwalīl, sweeping houses, that is, for winter ceremonial. 12. mā′g·aʿya, staying in dance house . 13. ts!ā′tap!a, split both ways (the winter solstice).

Kwakiutl, Koskimo (Boas). 1. wā′laʿwa, ? 2. q!Egux·ulä′, nothing on it? 3. q!E′nu, no sap in trees. 4. gō′ʿlEnx, raspberry season. 5. gwā′t!Enx, huckleberry season. 6. nEk!u′nx, sallalberry season. 7. mElālalasgEm (ts!ā′tap!a), southeast wind moon. 8. nE′mnāla, sockeye moon. 9. ʿnō′la, elder brother. 10. tē′kwabā′ʿē, under, that is under elder brother. 11. dzEx·udzEwī′tsEm, pile driving moon. 12. waʿʿmitsEm, fish in river moon. 13. ts!ā′tap!a, split both ways (the winter solstice).

Bella Coola (Boas). 1. sxōlE′mx·EnEm. 2. alaō′nstimōt. 3. siaq'u′m. 4. siqiō′lx·. 5. sinō′moak·. 6. sōE′mt, summer solstice. 7. sî′l.xum. 8. sexexē′mut. 9. sinuLlā′lsEmtEnEm. 10 tsi sitak·āns tsEau Anaūlikuts'ai′x·. 11. lEmulēn. 12 sōEmt, winter solstice.

Nootka (Sproat). 1. hy-yeskikamilh, month of the most snow. 2. kahs-sit-imilh. 3. ay-yak-kamilh, when the herrings spawn. 4. outlohkamilh, month when the geese leave for the lakes to breed. 5. oh-oh-kamilh, in this month strange geese from a distance fly high on their way to inland lakes. 6. tahklahdkamilh, before the end of this month salmon berries have begun to ripen. 7. kow-wishimilh, many salmon berries ("this moon stays for two days"). 8. aho-sitsis. 9. satsope-us, named from the salmon so called. 10. enakonsimilh, evidently from the salmon so called. 11. cheeyahk-amilh. *12. mah-maykseh, elder brother (this month is nearer our November than December). 13. kathlahtik, brother (this moon "does not travel, but stays for two days").

Nootka, Ho'·ai'th·a tribe (Sapir). 1. qaɬa·tɬkɬ', younger (same term as for a man's younger brother. 2. hayɬ·sqaqēmd, —— moon. 3. q'·ɬx-satɬmd, water becoming muddied moon. 4. 'a·ya·qēmd, herring spawning moon. 5. ho.'uqumd, migratory birds congregating on the rocks moon. 6. t'a·ktɬa·t'otɬmd, bead stringing moon. 7. qawacmd, salmon berry moon. 8. '·a·sitsas, bees (and wasps) (make nests) on the ground. 9. sat'sopas, tyee salmon come up. 10. hɑnk'o.'asɑmd, dog salmon moon. 11. t'ci·ya·qēmd, cutting up moon (fish cut up for smoking). *12. 'ma.'mɑ·qso, older (brother or sister).

Nootka, Tsica·'ath·a tribe (Sapir). *1. hayaskɑqɑmd, stormy moon. 2. q'a·ɬxsatɬmd, dirty water moon. 3. 'a·yaqɑmd, herring spawning moon. 4. '·o·tɬ'·o·kwɑmd, going off one after another moon (refers to the migration of various kinds of ducks). 5. hoya·qɑmd, flying up in the air moon (refers to

passage of the California geese). 6. 'a-sitsas, bee daughter (refers to the swarming of the bees). 7. t'a-k'tła-'tak't-amd, stringing salmon berries on fine stems of maidenhair fern moon. 8. sat'sopas, tyee salmon daughter. 9. hɛnkɔ-'asamd, dog salmon moon. 10. t'ci-ya-qamd, cutting up moon. 11. qała-tk', younger brother of male. 12. 'ma-'mɑ-q'so', oldest (brother, sister).

Makah (Swan). 1. a-a-kwis-put'hl, month the whale has its young. 2. kluk-lo-chis-to-put'hl, month the weather begins to grow better, days longer, and the women go alone for firewood. 3. o-o-lukh-put'hl, month the fin-back whales arrive. 4. ko-kose-kar-dis-put'hl, month of sprouts and buds. 5. kar-kwuch-put'hl, month of the strawberry and the salmon berry. 6. hay-saik-toke-put'hl, month of the red huckleberry. 7. kar-ke-sup-he-put'hl, month of wild currants, gooseberries, and sallal. 8. wee-kookh, season of rest. 9. kars-put'hl. 10. kwar-te-put'hl, month for catching a kind of rock fish. 11. cha-kairsh-put'hl, season of winds and screaming birds. *12. se-hwow-as-put'hl, month the California gray whale makes its appearance.

The Makah reckon their year from the time the days begin to lengthen. The time they begin to shorten is also noted.

Sĭciatl (Hill-Tout). 1. tɛm k-aikQ, eagle time. 2. tɛm nɛm, time when big fish lay eggs. 3. tɛm sā'tskai, budding time. 4. tɛm slēm, named from a large migratory bird. 5. tɛm tsē'ōnɪtsē'ōn, the diver loon month. 6. tɛm k-wē̄ɛk-wɛl, salmonberry time. 7. tɛm saíuq, redcap raspberry month. 8. tɛm tā'kā, sallalberry time. 9. tɛm ok-wā'lɛnuh, time when fish stop running. 10. tɛm palk-ā'l'nuh, time when leaves fade. 11. tɛm qā'sētein, time when fish leave the streams. 12. tɛm kwitō'.

Salish (Hale, in Gallatin). 1. skhuwusus, cold. 2. skiniramun, a certain herb. 3. skaputru, snow gone. 4. spatlum, bitter root. 5. stagamawus, going to root the ground. 6. itkhwa, camass root. 7. saantkhlkwo, hot. 8. silamp, gathering berries. 9. skilues, exhausted salmon. 10. skaai, dry; or, kinui-etkhluten, house building. 11. keshmakwaln, snow. *12. süslikwu.

Piskwaus (Hale, in Gallatin). 1. skiniramun. 2. skupatskiltin. 3. skasulku. 4. katsosumtun. 5. stsaok. 6. kupukalukhtin. 7. silump. 8. tshepumtum 9. panpatkhlikhen. 10. skaai. 11. sustikwu. *12. skwusus.

Tewa, San Juan (Harrington). *1. 'ojip'o, ice moon. 2. depihæp'o, moon when coyotes are frightened, (cliffs fall down and coyotes are startled). 3. tsæqwirisitsap'o, lizard belly cut month (because it is said that lizards' navel cords are then cut). 4. kapabep'o, month when leaves break forth. 5. kasæp'o, tender leaf month. 6. kak'ump'o, dark leaf month; or, saŋqwamp'o, St. John month. 7. p'ewep'o, month of ripeness; or, santiagup'o, St. James month. 8. tatsap'o, wheat cutting month. 9. k'arip'o, take home month. 10. kajemup'o, month of falling leaves. 11. hæ we'gep'o, month when all is gathered in. 12. nup'ap'o, Christmas month, literally "ashes fire."

Tewa, Santa Clara (Harrington). *1. 'ojip'o, ice moon. 2. bodop'o, crazy moon (because of boisterous weather; probably adapted from the Spanish febero loco). 3. kapabep'o, month when leaves break forth. 4. ————. 5. k'uŋkop'o, corn planting month. 6. nampap'o, agriculture month; or, saŋqwamp'o, St. John month. 7. kwæjip'o, horse month; or, santiagup'o, St. James month. 8. tatsap'o, wheat cutting month. 9. hæp'ep'o, all ripe month; or, k'unt'ep'o, month when corn is taken in. 10. p'ojep'o, harvest month. 11. hæwe'gep'o, month when all is gathered in. 12. nup'ap'o, Christmas month, literally "ashes fire."

Tewa, San Ildefonso (Harrington). *1. 'ojip'o, ice month. 2. wap'o, wind month. 3. kapabep'o, month when leaves break forth. 4. kawarep'o, month when leaves open. 5. k'uŋkop'o, corn planting month. 6. saŋqwamp'o, St. John

month. 7. *s*antiag*u*p'o, St. James month. 8. *ta* tsap'o, wheat cutting month. 9. *'a*p'opap'o, month when sirup is made. 10. kajemup'o, month of falling leaves. 11. *hæwe'ge*p'o, month when all is gathered in. 12. nup'ap'o, Christmas month, literally "ashes fire."

Tewa, Nambé (Harrington). *1. 'ojip'o, ice moon. 2. k'osi*n*disitsap'o, lizard belly cut moon (because it is said that lizards' navel cords are then cut). 3. kapa*b*ep'o, month leaves break forth. 4. kawarep'o, month when leaves open. 5. k'u*ŋ*kop'o, corn planting month. 6. sa*ŋ*qwamp'o, St. John month. 7. *s*antiag*u*p'o, St. James month. 8. tatsap'o, wheat cutting month. 9. p'ewep'o, month of ripeness. 10. kajemup'o, month of falling leaves. 11. *hæwe'ge*p'o, month when all is gathered in. 12. nup'ap'o, Christmas month, literally "ashes fire."

Jemez (Harrington). *1. sek*f*up'â, flying ant moon. 2. hudap'â, cedar dust wind month. 3. no'*ts*up'â, small leaf moon. 4. no'otap'â, big leaf month. 5. tsak'up'â, baby antelope month. 6. sa*ʀ*wap'â, St. John month. 7. *s*atejagup'â, St. James month. 8. pakwap'â, festival month. 9. ————. 10. hatsip'â, husking month. 11. pâtŏpakwap'â, fall and winter festival month. 12. *n*umisap'â, Christmas month.

The difficult orthography of Harrington has been somewhat simplified in the foregoing five lists.

Zuñi (Cushing in Harrington). *1. i'-koh-pu-yä-tehun, growing white crescent, or i-shoh-k'o'a-pu-yä-tchun, crescent of conception. 2. ta-yäm-tchu-yä-tehun, because boughs are broken by the weight of descending snow. 3. o-nan-u'l-ak-k'ia-kwum-yä-tchun, snow lies not in the pathway. 4. thli'-te-kwa-na-k'ia-tsa-na-yä-tchun, moon of the lesser sand storms. 5. thli-te-kwa-na-k'ia-thla'-na-yä-tchun, moon of the greater sand storms. 6. yä-tchum-kwa-shi-am-o-na, crescent of no name. 7. ————, yellow. 8. ————, blue. 9. ————, red. 10. ————, white. 11. ————, iridescent or variegated. 12. ————, black.

Zuñi (Stevenson). 1. taiyämchu, limbs of the trees broken by snow. 2. o'nänulakïakwamĕ, no snow in road. 3. ᵗʜli'tekwakïaᵗsanna, little wind month. 4. ᵗʜli'tekwakïaᵗhlan'na, big wind month. 5. kwash'iämme, no name. 6. ————. 7. ————. 8. ————. 9. ————. 10. ————. 11. ————. *12. i'kopu, turning or looking backward (the sun father pauses awhile before returning).

For the summer months the names of the winter months are repeated.

Hano (Fewkes). 1. elo-p'o, wooden cup moon (refers to cups made of wood, used in a ceremonial game). 2. ka'uton-p'o, singing moon. 3. yopobi-p'o, cactus flower moon. 4. pu'ñka-p'o, wind break moon. 5. señko-p'o, to plant secretly moon (refers to planting of sweet corn in nooks and crevices, where children may not see it, for the "Niman Kateina". 6, 7, 8, 9, 10, nameless moons, or a repetition of five winter moons. *11. ee'ñi-p'o, horn moon (possibly a reference to the Aaltu of the New Fire ceremony). 12. tûñtai-p'o, winter solstice moon.

The months from June to October are nameless, that is they repeat the designations for the winter months.

Hopi (Fewkes, 1897). 1. pamü'iyamû. 2. powa'mü'iyawû. 3. ü'cümü'iyawû. 4. kwiyaomü'iyawû. 5. hakitonmü'iyawû. 6. kelemü'iyamû. 7. kyamü'iyamû. 8. pamü'iyamû. 9. powa'mü'iyamû. 10. hüükmü'iyamû. 11. ü'cümü'iyamû. 12. kelemü'iyamû (this month is nearer our November). *13. kyamü'iyamû.

The second part of October, number eleven above, is said to be called tühoe. This would make fourteen months to the ceremonial year. The word müiyamu means moon.

Hopi (Fewkes, 1903). 1. pamüryawû. 2. powamüryawû. 3. ücümüryawû. 4. ————. 5. kyamüryawû. 6. ————. 7. pamüryauû. 8. powamüryauû. 9. No name. 10. No name. *11. kelemüryawû. 12. kyamüryawû.

The Hopi year is solstitial. The winter solstice ceremonies mark the beginning of the year.

NUMERAL TYPE

The following tribes use the numeral type of calendar: Aleut, Kaniagmiut, Lillooet, Modoc, Shushwap, Stsɛē'lis, Thompson (Lower Thompson and Spence's Bridge Bands), Tlingit, and Yurok. The Ahtena, who also use the numerals, are not listed, since the names of the months are not given.

Aleut (Wenjaminow, in Schiefner). 1. tugid'igamak, the great month (it is longer than the others). 2. anulgi'lak', sea raven month; when one hunts the nril with nets. *3. kadu'gix, the first; or, kisagu'nak. 4. agaluji'gix-k'isagu'nak'; also sada'gan k'agik, when one is outside the houses. 5. ic'ic'xux; or, c'ig'um tugida', flower month. 6. 'cagali'lim tugida'; or, c'agaligi'm tugida', young animal month. 7. sad'i'gnam tugida, month the young animals become fat. 8. ugnam; or, uxnam tugida', the warm month. 9. c'ŋu'lim tugida'. 10. kima'dgim tugida', hunting month. 11. kima'dgim kaŋin tugida', month after the hunting month. 12. agalgu'gak; or, agalga'luk', when one hunts sea lions.

Kaniagmiut (Dawydow, in Schiefner). 1. agwinyx, the sixth month. 2. kypnyxe'ik, when one cuts up dried fish into pieces. 3. kwigit-annit, the ice breaks. 4. manixe'ixwak, the raven lays eggs. 5. manixe'ic'ak, the birds which stayed on the island during the winter lay eggs. 6. kaig jaat, the sea robins have their young. 7. managxat. *8. kabjaxgun, the Pleiades begin to rise. 9. tugaxgun; or, tagegun, Orion rises. 10. kanc'aun, frost on the grass. 11. kaŋus'auc'i, snow appears on the mountains. 12. kaglagwik, the rivers and sea freeze.

Tlingit, Sitka informant (Swanton). 1. t!ā'waq dî'sî, goose month. 2. s!īk dî'sî, black bear month. 3. hīn tā'nax kayā'nî dî'sî, month in which sea-flowers, etc., begin to grow. 4. q!ē'ga kayā'nî dî'sî, real flower month. 5. djînkā'ta, tenth month. 6. djî'nkat wanā'ka, eleventh month; also xāt dî'sî, mouth of salmon. 7. Atga' daxēt dî'sî, month when everything is born. 8. The first part, At gata' dî'sî, month in which everything born begins to fatten; *the second part, cāx-ŋyî', because all birds then come down from the mountains. 9. dîs yA'dî, small moon or moon child. 10. dîs Lēn, big moon. 11. qoqā'ha dîs, the month in which people have to shovel snow away from their doors. 12. cA'nAx dîs.†

Stsɛēlis (Hill-Tout). 1. tɛm t'sɛ'lɛwestɛl, season for putting the paddle away. 2. tl'kā'tsɛs, fifth. 3. t'qu'mɛs, sixth. 4. tsau'ksɛs, seventh. 5. t'kā'tsās, eighth. 6. tōqɛs, ninth. 7. āpa'lɛs, tenth. 8. umtsɛ'muksɛl, the coming together or meeting of the two ends of the year (this name includes September also, although the latter part is often named differently as here indicated under 9). 9. tɛm yā'auk; time of the dying of the salmon. *10. tɛm pā'k-uk, spring salmon spawning time. 11. tɛm kwā'lōq, dog salmon spawning season. 12. tɛm mē'tla; or, smētlā's, dancing season.

† Compare the Tlingit months as given by the Wrangell informant, listed under the descriptive type. Swanton regards the list given by the Sitka informant as probably the more ancient.

Lillooet (Teit). 1. Third moon; or stexwauzi'ken, middle month—middle of back or ridge. 2. Fourth moon; or, ˈnu'tskatɛn, coming out time or place. 3. Fifth moon; or ˈskwełkwa'l, green moon; or, ˈskaptsō'l, real spring or Chinook wind month. 4. Sixth moon; or, ˈsla'kôlkwallt, leaves green. 5. Seventh moon; or kwo'ltus ˈsku'klep, when strawberries are ripe. 6. Eighth moon; or kwôlixtcu't, ripen self. 7. Ninth moon; or, spantsk, summer. 8. Tenth moon; or, Laq a ˈstsō'qaza, the salmon come. 9. Eleventh moon; or, ˈstsĉ'pɛq, boiling (the Lillooet boil salmon and make oil). 10. Rest of the year; or, Llwê'lsten, fall or autumn. *11. First moon; or, ˈnu'lxten, going in time or place. 12. Second moon; or, tca'uamuxs tceni'ken.

Shushwap (Teit). 1. Third moon; or, pełkutłami'n. 2. Fourth moon; or, peska'pts, spring [winds] month. 3. Fifth moon; or, pesx·ü'xem, [little] summer [moon]. 4. Sixth moon; or, pelteke'liaiten. 5. Seventh moon, or, peltepa'ntsk, mid-summer [month]. 6. Eighth moon; or, pełka'kaldɛmex, getting ripe month. 7. Ninth moon; or, peltemelik, autumn month. 8. Tenth moon; or, peltex·ele'lx·tɛn. 9. Eleventh moon; or, pelx·etci'kenten. 10. Balance of the year; or pelwê'llsten. *11. First moon; or, pelx·alu'lxten, going in time. 12. Second moon; or pestitê'qem.

Thompson, Spence's Bridge Band (Teit). 1. Third moon. 2. Fourth moon; or, pɛsqa'pts, spring [winds] month. 3. Fifth moon; or, nxü'itîn, coming forth time (people come out of winter houses). 4. Sixth moon. 5. Seventh moon. 6. Eighth moon; or, kwɛkwê'kwäit, they are a little ripe (the plural diminutive form of "kwäit" meaning ripe). 7. Ninth moon; or, têxwauzsī'kêntîn, middle time (because of the summer solstice). 8. Tenth moon; or Laxa'ks, first of run, or "nose" of ascending fish. 9. The next moon; or, kwīsu'I [poor], fish, kē̄kaitka'in, they reach the source. 10. The rest of the year; or, Lwü'istîn, fall time. *11. First moon; or, tcuktcukt. 12. Second moon; or, n'ü'lxtîn, going in time.

Lower Thompson (Teit). 1. Third moon; or, wawi't ta sn'ulx·, last going in. 2. Fourth moon; or, nxu·xuet, little coming out; or, skapts, spring or warm wind. 3. Fifth moon; or, n'ulx·wa'uas, going in again. 4. Sixth moon; or, nxu'it, coming out. 5. Seventh moon. 6. Eighth moon. 7. Ninth moon. 8. Tenth moon. 9. Eleventh moon; or, kokauxɛmu's, to cook food a little. 10. Autumn. *11. First moon. 12. Second moon; or, n'ulx·, going in time.

Modoc (Gatschet). 1. txo'powatka, thumb. 2. spe'luishtka, index finger. 3. ta'txēlam, middle finger. 4. ga'ptsēlam, ring finger. 5. ga'ptsatka, little finger. 6. txo'powatka, thumb. 7. spe'luishtka, index finger. *8. txo'powatka, thumb. 9. spe'luishtka, index finger. 10. ta'txēlam, middle finger. 11. ga'ptsēlam. ring finger. 12. ga'ptsatka, little finger.

Yurok (Kroeber). *1. kohtsewets, first (this month occurs about Christmas) 2. na'aiwets, second. 3. nahkshewets, third. 4. fourth. 5. fifth. 6. sixth. 7. seventh. 8. knewoleteu, eighth. 9. pia' ago (pia means red berries; pia' ago was given by four informants); also, kererwerk (given by three informants). 10. wetlowa, tenth (given by three informants); also, le'lo'o, the Karok "new year's" ceremony (given by one informant). 11. nohksho. nohsho', nosho, beginning to camp out to gather acorns(?), (given by three informants); also, hohkemo' (given by one informant). 12. hohkemo, acorns fall (given by two informants); also, ka'amohsher (given by one informant); also, ka'amo (given by one informant). 13. ka'amo, bad cold (given by two informants).

DESCRIPTIVE TYPE

The following tribes use the descriptive type of calendar: Arikara, Bannock, Beothuk, Blackfoot, Carrier, Choctaw, Cree (Eastern and Plains), Dakota (including Teton, Sisseton, Eastern), Delaware, Dog Ribs, Haida, Hare, Iroquois, Kansa, Kiowa, Lenape, Loucheux, Lower Yukon Eskimo (and those south of the Yukon delta), Maidu, Malecite, Mandan, Micmac, Montagnais, Muskokee, Nahanc, Natchez, Navaho, Ojibwa, Omaha, Onondaga, Osage, Oto and Iowa, Pawnee, Pima, Point Barrow Eskimo, Saulteaux, Sauk and Fox, Seminole, Shushwap, Slavey, Tahltan, Tlingit, Tse'kehne, Tsilkoh'tin, Unalit, Ute, Winnebago, Yuchi.

Eskimo

Point Barrow Eskimo (Murdoch). 1. ida'sugaru, (the compound cannot be analyzed, but is probably related to cold); or, sûkûnyatyia, little sun; or, sûkûnyasu'garu. 2. audla'ktovwiñ, time for starting out—to hunt reindeer. 3. sûksila'bwi, time for starting to come home. 4. umi'sûrbwiñ, time for making ready the boats. 5. kau'kerbwiñ, time for fowling. 6. yögniabwiñ, time for bringing forth—laying eggs. 7. ————. 8. ————. 9. ————. *10. su'dlivwiñ, time for working, sewing. 11. sn'dlivwiñ aipa, second time for sewing; or, su'dlivwiñ kiñu'lia, succeeding sewing time. 12. kaibwid-wi, time for dancing.

Murdoch was told that for the summer months "there was no moon only the sun." Compare Simpson's account of the Point Barrow Eskimo.

Point Barrow Eskimo (Simpson). 1. au-lak'-to-win, departing—to hunt reindeer. 2. ir'-ra shu'-ga-run sha-ke-nat'-si-a, great cold (and) new sun. 3. e-sek-si-la', wing. 4. kat-tet-a'-wak, returning (from the hunting ground) for whale. 5. ka-wait-piv'-i-en, birds arrive. 6. ka-wai-a-niv'-i-en, birds hatched. 7. ka-wai'-lan pa-yan-ra'-wi-en, (young) birds fledged. 8. a-mi-rak'-si-win. 9. it-ko-wak'-to-win. *10. shud'-le-wing, sewing. 11. shud'-le-wing ai-pa, sewing. 12. kai-wig'-win, rejoicing.

Unalit (Nelson). 1. wī'-wīk, to turn about. 2. nai-īkh'-chīk, the time first seals are boru. 3. tī-gīg'ī-lukh'-chīk, time of creeping on game. 4. kīp-nûkh'-chīk, time of cutting off (from the appearance of sharp lines where the white of the ptarmigans' bodies is contrasted with the brown of the new summer neck feathers). 5. kai'-ākh-tûg'-o-wīk, time for going in kaiaks. 6. no-âkh'-chûg-û-wīk, time of fawn hunting. 7. koñ-in'-nī-g'e'-nût īñ-īj'-û-vī-ût, time of geese getting new wing feathers. 8. kuj'-u-gut īñ-īj'-û-vī-ût, time for brooding geese to moult. 9. äm-i-ghai'-ghû-wīk, time for velvet shedding. 10. ku'-bvī-jûkh-pûg'-û-wīk, time for seal nets. 11. ûk'-whû'-tûg'-û-wīk, time for bringing in winter stores. 12. chau'-i-ûg'-û-wīk, time for the drum.

Eskimo, Lower Yukon, near Mission (Nelson). 1. u-i'-wûk, season for top spinning. 2. a-kī-luh' st-a'-gu-wīk, time of offal eating; or, i-gi'a-luh'-lûkh, cold moon. 3. knp-nûkh-chûk, time of opening upper passage ways into the houses (said to be an old term, when it was much warmer than now, and when the sun began to melt the snow a month earlier than at present). 4. tīñ'-û-mī-ākh'-lhu-ûg'-û-wīk, birds come. 5. tīñ'-û-mi-ag'-û-wīk, geese come. 6. man-it'-ăn-u'-tit, time of eggs. 7. nûk'-sûg'-o-wīk, time of salmon. 8. u-ko'-go-

lĭ-sŏg-û-wĭk, time for red salmon; or, tĭñ'-û-mi-at' iñ-u'-tit, water fowl moult. 9. tĭñ'-û-mi-ăt tĭñ'-u'-vi-ăt, time for young geese to fly. 10. ăm-ĭ-gai'-gu-wĭk, time for shedding velvet from reindeer horns. 11. chup'-whĭk, mush ice forms. 12. ka'-gi-tăgh'-ŭ--wik, time of muskrats. 13. chai-ûgh'û-wĭk, time of the feast.

Eskimo, south of the Yukon delta (Nelson). 1. wĭ'-wĭk, named from a certain game of the top. 2. ă-găh-lûkh'-lûk, time of much moon, that is long nights. 3. uñ-ŏgh-o-wĭk, time of taking of hares in nets. 4. kup-nûkh'-chûk, time of opening of summer doors. 5. tĭñ-mi-ăgh'-û-wĭk, arrival of geese. 6. chi-sûgh'-û-wĭk, time of white fish. 7. tûg-i-yûk'-pûkka-gn'-ti, time of braining salmon. 8. tĭñ-û-mĭ-ûtĭñ-u'-ti, geese moult. 9. ku'-gĭ-yutĭñ-u'-ti, swans moult. 10. tiñ-u'-ti, the flying away. 11. am'-i-gha'-ghûn, time of velvet shedding. 12. name was not obtained.

Northwest Coast

Tlingit (Petitot). 1. ————. 2. ————. *3. avuŏni-vik, time when the sun is weak. 3. amaꝑolik-eꝑvik, time of the yellow-hammer of the snow. 5. (first part) kꝑiblaleꝑ-vik, time of the break up of the ice; (second part) tigmiyeꝑvik, time of the geese. 6. neuꝑtop-vik, time of the long days. 7. kꝑiblaleꝑvik, time of the porpoise. 8. itçaoyat, the moulting. 9. ————. 10. tɕikolœꝑaꝑk, formation of the ice. 11. tchiꝑkꝑe'n'eꝑe'-laꝑk, the sun disappears. 12. kꝑayviyivik, time of the houses.

Tlingit, Wrangell informant (Swanton). *1. t!ā'wAq dĭ'sî, goose month. 2. s!ĭk dĭ'sî, black bear month. 3. gAt dĭ'sî, silver salmon month. 4. àtgA daxet yĭ'na dĭ'sî, month before everything hatches. 5. AtgA daxet dĭ'sî, month everything hatches. 6. eaxeyê', meaning unknown. 7. At gatá dĭ'sî, month when the geese can't fly. 8. qoqA ha' dĭs, month when all kinds of animals prepare their dens. 9. dĭs ya'dî, moon child or young moon. 10. dĭs Lēn, big moon. 11. At qōwn' dĭsî, month when all creatures go into their dens; or, cē'nax dĭs, said to mean the same. 12. sAx-la dĭ'sî, ground hog mother's moon.

Haida (Harrison). 1. tān kungas, bear month. 2. lthkittūn kungas, goose month. 3. yhitkāas kunkas, laughing goose month. 4. whitgaas, foreign goose month. 5. tāhellē kungas, time that flowers blossom. 6. hānskaila kungas, berries begin to ripen this month. 7. hānalung kungas, berries are quite ripe this month. 8. chīn kungas, salmon month. 9. kishalsh kungas, dog salmon month. 10. kalk kungas, ice moon. 11. chāē kungas, bears begin to burrow in the ground this month. 12. kwīougē kungas, very cold month; or, gwougiangās kungas, the weather is too cold to sit down to relieve themselves.

Mackenzie and Northern Plateau

Tahltan (Emmons). 1. sartses lar, bad month, referring to the weather; also middle month. 2. denotenna, little crust comes on the snow. 3. iht si sa, wind month. 4. khlee ten narsa, the dog runs over the crust of the snow. 5. ih azee e sa, running month. 6. a ya ze sa, young (born) month. 7. a chi zee sa, moulting (birds) month. 8. da deah e sa, ground hog gets white hair; animals fatten. 9. hos-talh e sa, ground hog in prime condition; the animals fatten. *10. men ten tchet ly, little cold. 11. men ten tche, big cold. 12. ghar uwue sa, rabbits eat quickly (this is a reference to the short days).

Carrier (Moricc). 1. sa-tco, big moon. 2. tcœz-sœl, the root of this word is now meaningless. "sœl" means small. 3. tcœz-tco, the root of this word is now meaningless. "tco" means large. 4. cin-uza, moon of the spring. 5. tokus-uza, moon of the carp. 6. tañr-uza, moon of the summer. 7. ke'sœl-uza,

moon of the land locked salmon. 8. thallo-za, moon of the red salmon. 9. pît-uza, moon of the bull trout. 10. ʇoh-uza, moon of the white fish. 11. panrən nət'sakei, during its half one navigates. 12. sa-tco-dîn-ai, next to the big moon.

Tse'ke'hne (Morice). 1. int'sih-sa, moon of the wind. 2. yastəse-sa, moon of the snow storm. 3. ahta-înza, moon of the golden eagle. 4. patqê-înza, moon of the wild goose. 5. sas-inza, moon of the black bear. 6. mənəh-tce'-thə-ole, moon when they take to the water. 7. hə'ke-ta, the buffalo ruts. 8. Etsiz-înza, moulting moon. 9. sa-tsətle, little moon. 10. sa-teî, great moon. 11. E'ka-î, the fat (of animals) disappears. 12. mə-thə'nthən-tsətle, what freezes is covered with bare ice.

Tsilkoh'tin (Morice). 1. ————. 2. ————. 3. ————, moon when one comes out of the subterranean huts. 4. ————, moon of the sucker. 5. ————. 6. ————. 7. ————, moon of the Kes or white fleshed salmon. 8. ————, moon of the red fleshed salmon. 9. ————. 10. ————. 11. ————, moon all enter the subterranean huts. 12. ————, moon of ice.

Morice gives only the main peculiarities of the Tsilkoh'tin calendar. He has placed this partial list of the Tsilkoh'tin month names immediately after the Carrier and the Tse'kehne calendars, thereby implying a similarity between the Tsilkoh'tin, Carrier and Tse'kehne.

Nah-ane (Morice). 1. sa-t'se'slhie, month of the middle (of the year). 2. tœnon-thene, the snow is a little frozen over. 3. iht'si-sa, month of the wind. 4. tlhi-pœnetse'-e, moon, which the dog uses for barking. 5. ih-aze-sa, month in which all the animals leave their winter retreats. 6. œyaz-e-sa, month of the little ones. 7. œteite-e-sa, month in which they moult. 8. ti'ka-e-sa, month in which they fatten. 9. hosthelh-e-sa, month of the female marmot. 10. mœn-then-tsetle, month of small ice. 11. mœn-then-tco, month of big ice. 12. kœrh-urwœsse, month in which the rabbit gnaws.

Hare (Petitot). 1. tl'in tchê-téwè, the tail of the dog lengthens out to the fire. 2. nin-ttsi-ratchô, great wind. *3. bémên- tl'in- nat'ié, moon the dog suffers; or, llin- yat'iw, moon the dog yaps; or, ara-tchon-"ay, the moon turns on its bed. 4. nafwin--naté, snow blindness reigns. 5. nafwin.-enllu, month snow blindness is contracted; or, bémên- t'è-goχin-, month of thaw. 6. eɒ'ié gun-sa, moon of eggs. 7. ettchiw gunsa, moon of moulting. 8. bédzi-tchô dé-in"a gun-s-a large reindeer return from the sea. 9. l'ugé gunsa, moon of fish. 10. étsen-gun-sa, moon in which food spoils. 11. taɒè-tten- dé"a gunsa, moon the reindeer go up into the wooded plateaus. 12. t'è-en-"a gun-sa, reindeer arrive upon the lakes of the interior.

Loucheux (Petitot). 1. vœ-nan l'én- tchilchɒo, moon when dog is cold. 2. t'adha-s-ié, moon of ice. 3. chiê-zétché s-ié, moon of eagles. 4. vœnan l'én yitchi, moon in which dog barks. 5. vœnan ll'u-tidjié, moon of the break up of ice; or, vœnan atoɒwo, moon of the sea. 6. vœnan yédétcheadh, moon of moulting. 7. vœnan nan-éné"-itchité"ey, moon of the long day (day continued). 8. vœ-nan-ti-itchill, moon of the rutting of reindeer. 9. vœnan nill'utiya, moon of the chase. 10. nikutiɕha s-ié, moon of warmth. 11. tœvis-ié, moon of the mountain goats. 12. vœnan s-ié-nakudhœt, moon in which the sun is dead.

Dogribs (Russell). 1. e't-se să, cold sun. 2. nĭt-se să, small wind sun. 3. nĭt-se-cha să, big wind sun. 4. wĭn-di-thi-che-ko să, the dogs travel with tails up sun. 5. ne-wik-ŭn să, sore eyes sun. 6. weu-ă-kĭ să, egg sun. 7. wĕn-a-chy-ko^{s} să, the wing feathers are moulted sun. 8. wĕn-ăt să, the caribou enter the woods sun; also, wĕn-di-e-ĭn-e-ti să, the berries are ripe sun. 9. wĕn-a-chă să, the caribou are abundant in the woods sun. 10 ĕk-olă-chĭn-co să,

paddle shoulder sun (this name alludes to the practice of striking a scapula against trees in luring moose at this season). 11 wĕn-de-to^{n} să, the ice sets fast sun. 12. ————. ["Sun" obviously stands for "moon" in this list and the next.]

Slavey (Russell). 1. e-toz-in-e-cho-ke să, new year's sun. 2. ni-tsyă să, small wind sun. 3. tĕ-to^{n} sho să, eagle sun. 4. ni-tsya-cho să, big wind sun. 5. be-ken-ot-o-to-ni-no^{n}-ta să, the geese arrive sun. 6. chi-mĕ-ăb-ĕ-ya să, the ducks are laying sun. 7. bĕ-kĕ-chi-ĕ-yă-tĕn-nĕ-tī să, the berries ripen sun. 8. colo^{n}-ye-kĕn-ak-e-ne-i-a să, moose rutting sun. 9. ————. 10. thlu-ī-kă-tse-de-tī să, fishery sun. 11. ————. 12. ————.

Shuswap (Dawson). 1. pil-ta-tĕ′-a-kum, midwinter month. 2. pil-tshik′-in-tin. *3. pīs-kāpits′, spring. 4. pīs-whī-a-whoom, grass month. 5. pit-la-kāt′-lai-a-hin, root digging month. 6. pit-tā-pānsk, strawberry month. 7. kal′-kul-tum-ah, berry month. 8. pil-tum-hlīk, salmon month. 9. pil-ta-klē-lahīn′, month when salmon get bad. 10. pil-tloo-alītstīn′, month when deer travel. 11. pilwhatl-ootlin, month when they return from hunting. 12. pil-kwootl-a-mīne′, remaining at home month.

California

Northwestern Maidu (Dixon). 1. i′nto, drying up (?). 2. omi hi′ntsūli, squint eye rock (?). 3. ko′no, wife. *4. wi′nūti (the exact meaning of this term is unknown, but it is probably related to "ū′ti" which means black oak). 5. tēm dī′yoko, said to mean having fawns. 6. nēm dī′yoko, big month. 7. ka′ui tso′n po′ko, ground burning month. 8. ēs′lakum po′ko, middle month. 9. ma′tmennin po′ko, bread month. 10. ba′paboko (the meaning is unknown). 11. bo′lyĕ (the exact meaning is unknown, but the word is probably related to "bo" which means trail). 12. săp (the exact meaning is unknown; the word is related either to "sā" meaning fire, or to "săpŏi" meaning four).

Northeastern Maidu (Dixon). 1. tetem tsămpantom pō′ko, big tree freeze moon. 2. kana′ipinom po′ko, under burn moon (the wood will burn only underneath). 3. bō′ĕkmen pō′ko, trail breaking open moon. 4. bō′mtetnom pōko, sitting down along trail moon. 5. konom pō′ko (the meaning is unknown). 6. ————. 7. ————. 8. külo′kbĕpinem po′ko (külo′kbĕ means an old woman. Old women are said to die of the heat in this month). *9. sĕ′meni′m po′ko, seed moon. 10. ————. 11. ————. 12. tēm tsā′mpantom pō′ko, little tree freeze moon.

Northwestern Maidu (Kroeber). 1. yeponi, ceremonial initiate "because there is sickness"; or, bompene, two paths. 2. kakakano, pattering showers. *3. shawi; or, sha kono, flowers bloom. 4. laila, grass grows. 5. konmoko, seeds, fish and geese are caught. 6. nengkankati, hot. 7. tumi, smoky. 8. temsimi, acorns begin to ripen. 9. kummenim shemmeni, winter acorns are gathered. 10. shawodo, black acorns are cached. 11. yapakto, divided (the winter is half gone). 12. omhinchuli, ice lasts throughout the day.

Southwest

Navaho (Franciscan Fathers). 1. yās n'ł̨t'ēs, probably melting of snow. 2. atsā′ biyā′zh, eaglets. 3. wōzhch'ī′d, the meaning is obscure. 4. dāch'ī′l, short corn; or, t'ehīl, tiny leaves; or, t'ăch'īl, small feathers of eagles. 5. dātso, tall corn; or, tātso, large leaves; or, t'ā′tso, large feathers of eagles. 6. yā'ishjāshch'īli, I insert the small grains. 7. naeeshjā′stso, the big sugarcane. 8. binīnt'ā′tsō′si, light ripening. 9. binīnt'ā′tso, the great ripe or harvest.

*10. ghăji, back to back (when the white of winter and the yellow of summer meet, turning their backs to each other, the one to proceed, the other to retrace the steps). 11. nłts'i'ts'ō'si, light or slender wind. 12 ułts'ī'tso', much or big wind.

Pima (Russell. Informant, Kâ'mâl tkâk). 1. aʊfpa hiâsīk, cottonwood flowers. 2. aʊfpa i-ivakitak, cottonwood leaves. 3. koĭ i-ivakitak, mesquite leaves. 4. koĭ hiâsīk, mesquite flowers. 5. kai teokolīk, black seeds on the saguaros. *6. harsany paihitak marsat, saguaro harvest moon. 7. teokiapīk, rainy. 8. rsopol usapīk, short planting. 9. varsa kakatak, dry grass. 10. hʊhokiapk', winter begins. 11. oam, yellow. 12. kâ-âmak, leaves falling.

Pima (Russell. Informant, Antonio Azul). 1. kʊ-uteo s'hupitcīk, big winter. 2. kâmaki, gray. 3. teʊ-utaki, greeu. 4. oam, yellow. 5. kâ-âk, strong. 6. *6. pelkany paihitak marsat, wheat harvest moon. 7. harsany paihitak, saguaro harvest. 8. teokiapīk, rainy. 9. rsopol usapīk, short planting. 10. varsa kakatak, dry grass. 11. vi-ihainyīk, windy. 12. ovalīk, smell.

Plains and Southern Plateau

Arikara (Maximilian). 1. Moon of the seven cold nights. 2. Moon which kills or carries off men. 3. Moon in which wild geese return. 4. Moon of vegetation. 5. ————. 6. ————. 7.`————. 8. ————. 9. ————. *10. Moon in which leaves fall. 11. Moon of the nose of the little serpent. 12. Moon of the nose of the great serpent. The summer months of the Arikara have no names.

Mandan (Maximilian). 1. Moon of the seven cold days. 2. Pairing moon. 3. Moon of the weak eyes. 4. Moon of the wild geese; or, moon of the breaking up of the ice. 5. Moon in which maize is sown; or, moon of flowers. 6. Moon of ripe service berries. 7. Moon of ripe cherries. 8. Moon of ripe plums. 9. Moon of ripe maize. 10. Moon of the falling leaves. 11. Moon in which the rivers freeze. 12. Moon of the slight frost.

Matthews (70–72), judging from his own observations, thinks that the Mandan and the Minitaree have no "formal names for the lunar periods, although they often connect the moons with the natural phenomena; and that they are aware that twelve lunations do not complete the year."

Mandan (Will and Spinden). 1. Moon of the seven cold days. 2. Moon of the rut of the wolves. 3. Moon of the sore eyes. 4. Moon of game; or, moon of the river break up. 5. Moon of sowing; or, moon of flowers. 6. Moon of ripe June berries. 7. Moon of ripe choke cherries. 8. Moon of ripe wild plums. 9. Moon of ripe corn. 10. Moon of the fall of the leaves. 11. Moon of the freezing of the rivers. 12. Moon of the little cold.

Dakota (Keating). 1. we tahre, hard moon. 2. wechata we, raccoon moon. 3. wishta wasa we, sore eyes moon. 4. mahahahandi we, hunting moon. 5. mahahakanda we, oviparous game moon. 6. wajustechasha we, strawberries moon. 7. tschanpasha, cherries moon. 8. tatanka kehowa we, moon of the rutting of the buffalo. *9. wajopi we, moon of the commencement of the wild rice. 10. siushtaupi we, the end of the wild rice. 11. takehuhu we, the rutting of the deer moon. 12. tahechapshon we, deer shedding its horns moon.

Dakota (Hayden). 1. pte-iču-la-wash-te-yu-ta-wik, time when young buffalo, *in utero*, are good to eat. 2. shunk-a-ma'-ni-tu-ga-nash'-ki-wik, when the wolves go mad. *3. ma-ga-ga'-li-wik, moon geese come up from the south. 4. pe-ži'-to-i-wam-pi-wik, when the grass springs up. 5. shunk-a-ma-ni-tu-čin-ča-tōn-wik, when the wolves have their young. 6. pte-ki-u'-ha-wik, rutting time of buffalo.

7. čam′-pa-sha-wik, when the eherries are red. 8. čam′-pa-sa-pa-wik, black eherry month, when the cherries are red. 9. čaŋ-wak′-pe-hi′-wik, when the leaves become yellow. 10. čaŋ-wak-pe-inh-pa, when the leaves fall. 11. wik-to-ka-i-ča′-mi-na, when the first snow falls. 12. pte-yu′-kta-ha-shi′-na-wash′-te, when the robes are good.

Dakota (Schooleraft). 1. Severe or hard moon. 2. Moon in which racoons run. 3. Moon of the sore eyes. 4. Moon in which the geese lay eggs. 5. Moon for planting. 6. Moon for strawberries and for hoeing corn. 7. Midsummer moon. 10. Moon in which corn is gathered. 9. Moon in which they make wild rice. 10. Moon of the running of the does. 11. Moon of the running of the does (this month has the same name as the preceding one). 12. Moon in which the deer shed their horns.

Dakota (Gordon). 1. wee-te-rhee, the hard moon, that is the cold moon. 2. ————, coon moon. 3. ————, moon of the sore eyes. 4. magâ-okâ-da-wee, moon in which geese lay eggs; or, wokâda-wee, egg moon; or, wato′papee-wee, canoe moon. 5. wo′-zu-pee-wee, planting moon. 6. ————, strawberries moon. 7. ————, moon in which the geese shed their feathers; or, chang-pâ-sapa-wee, choke cherry moon; or, mna-rchâ-rcha-wee, red lily moon. 8. wasu′-ton-wee, ripe moon. 9. psin-na-ke′-tu-wee, ripe rice moon. 10. wâ-zu′-pee-wee, or, wee-wa-zu-pee, moon in which wild rice is gathered and stored for winter use. 11. ta-kee-yu-hrâ-wee, deer rutting moon. 12. ta-he′-cha-psing-wee, moon in which deer shed their horns.

Dakota (Neill). 1. wi-teri, hard moon. 2. wicata-wi, raccoon moon. 3. istawicayazan-wi, sore eyes moon. 4. magaokadi-wi, moon in which the geese lay eggs; or, wokada-we, or, watopapi-wi, moon in which the streams are again navigable. 5. wojupi-wi, planting moon. 6. wajustecasa-wi, moon in which the strawberries are red. 7. canpasapa-wi and wasunpa-wi, moon in which the choke cherries are ripe and the geese shed their feathers. 8. wasuton-wi, harvest moon. 9. psinhnaketu-wi, moon in which the wild rice is laid up to dry. 10. wi-wajupi, or, wazupi-wi, drying rice moon. 11. takiyura-wi, deer rutting moon. 12. tahecapsun-wi, moon in which the deer shed their horns.

Dakota (Riggs). 1. wi-tehi, hard moon. 2. wičata-we, raccoon moon. 3. is′tawičay-azan-we, sore eyes moon. 4. magaokada-wi, moon in which geese lay eggs; or, wokada-wi, and, watopapi-wi, moon streams again become navigable. 5. wožupi-wi, planting moon. 6. wažus′tečas′a-wi, moon strawberries are ripe 7. eaŋpasapa-wi, and wasuŋpa-wi, moon choke berries are ripe and geese shed feathers. 8. wasutoŋ-wi, harvest moon. 9. psiŋhnaketu-wi, moon rice is laid up to dry. 10. wi-wažupi, drying rice moon. 11. takiyuha-wi, deer rutting moon. 12. tahečaps′uŋwi, moon when deer shed horns.

Dakota (Beltrami). 1. onwikari-ouî, moon of valor. 2. owiciatá-ouî, moon of the wild oats. *3. wistaocia-ouî, moon of the bad eyes. 4. mograhoandi-ouî, moon of game. 5. mograhocandà-ouî, moon of the nests. 6. mojusticiasciá-ouî, moon of strawberries. 7. champascià-ouî, moon of the cherries. 8. yanlankakiocû-ouî, moon of the buffaloes. 9. wasipî-ouî, moon of the oats. 10. sciwostapî-ouî, second moon of oats. 11. takiouka-ouî, moon of the roebuck. 12. abesciatakskà-ouî, budding of the roebuck's horns.

Teton Dakota (Clark). 1. Moon in which the skin of the foetus of the buffalo is beginning to color. 2. Moon in which the hair gets thick on the foetus of the buffalo; or, man's or hard moon. 3. Sore eyes moon. 4. Moon in which the ducks come. 5. Moon in which the grass begins to get green and some roots are fit to be eaten. 6. Moon in which corn is planted. 7. Moon in which buffalo bulls are fat. 8. Moon in which buffalo cows are in season.

9. Moon in which plums get red. *10. Moon in which the leaves fall off. 11. Moon in which the buffalo cow's foetus is getting large. 12. Moon in which the wolves run together.

Sisseton and Eastern Dakota (Clark). 1. ————. 2. Moon in which the raccoons come out. 3. Sore eyes moon. 4. Moon in which the geese lay eggs. 5. Planting moon. 6. Moon in which the strawberries ripen. 7. ————. 8. Harvest moon. 9. Moon in which the wild rice becomes ripe. 10. ————. 11. Deer rutting moon. 12. Moon in which the deer shed their horns.

Omaha (Fletcher and La Flesche). 1. Ho^{n}'ga umubthi ike, moon in which the snow drifts into the tents of the Ho^{n}ga. 2. mi'xa agthi ike, moon in which the geese come home. 3. pe'nishka mieta ike, little frog moon. 4. miu'o^{n}thi^{n}g ike, moon in which nothing happens. 5. miwaa' ike, moon in which they plant. 6. tenu'gamigauna ike, moon in which the buffalo bulls hunt the cows. 7. tehu'ta^{n} ike, moon in which the buffalo bellow. 8. u^{n}'po^{n}huta^{n} ike, moon in which the elk bellow. 9. ta'xte ma^{n}no^{n}xa ike, moon in which the deer paw the earth. 10. ta'xti kithixa ike, moon in which the deer rut. 11. taxte hebaxo^{n}' ike, moon in which the deer shed their antlers. 12. waça'be zhi^{n}gai'da ike, moon in which the little black bears are born.

Fletcher and La Flesche say that the same designations are used by the Oto and the Iowa, except for the first month, which is known as the raccoon moon.

Pawnee (Hayden). 1. ki-wa'k-skūts, coldest moon. 2. ————. 3. pa-hu-ta'-wi-o, moon when the grass begins to start. 4. pu-hu'-wut-u'-rik, moon when the coldest weather is breaking up. 5. ————. 6. ————. 7. ————. 8. kāt, the last of summer. 9. ki-sa'-to, moon before cold weather commences. 10. nūt'k, snake moon. 11. ————. 12. ki-wa'-ka'k.

The Pawnee, according to Hayden, have only six moons.

Pawnee (Dunbar). 1. ka-at. 2. p-ra-pa. 3. pa-hu-tau-i-u. 4. pa-hu-wut-u-ru-kut. 5. pa-hi-wa-kar-uks. 6. pa-ra-rar-uks. 7. pa-rik-ish. 8. pa-la-re-huts. 9. kis-at-u. 10. lut-a. 11. ki-wuks-ki. 12. ki-wuks-kuts.

According to Dunbar the Pawnee have twelve and thirteen months alternately, the intercalary month being inserted at the end of summer.

Kiowa (Mooney). 1. ka'gu'ät p'a sän, little bud moon. 2. ka'gu'ät p'a, bud moon. 3. aideñ p'a, leaf moon. 4. pai ägâ'nti, summer ägâ'nti moon. 6. pai te'pgañ p'a, summer tépgañ moon. 6. pai gañhi'ña p'a, summer gañhiña moon. 7. t'a'guño'tal p'a sän, little moon of deer horns dropping off. 8. t'a'guño'tal p'a (edal), (great), moon of deer horns dropping off; or, aideñguak'o p'a, yellow leaves moon. *9. ga'kiñät'o p'a, ten colds moon. 10. ägâ'nti; or, ä'ga'ntsänha (from ä'gâ'ntsän, meaning "wait until I come"). 11. te'pgañ p'a, geese going moon; or bonpä p'a, sweat house moon. 12. gañhi'ña p'a, real goose moon.

The Kiowa moons do not correspond very closely with our months, for the first moon begins about the middle of our January and continues until near the middle of our February. According to the folklore of the Kiowa, the tenth moon, "Wait until I come," says to its predecessor, "You went but did nothing. Wait and I'll go, and I'll show you what I can do in the way of storms and cold weather." A similar explanation is attached to the summer ägâ'nti moon, the fourth moon of this list.

Kansa (Hunter). 1. Dead moon. 2. Thaw or rain moon. *3. Hunting, bird, or singing moon. 4. Flower moon. 5. Planting moon. 6. Salt moon. 7. Buffalo moon. 8. Corn or plum moon. 9. Harvest moon. 10. Bear or smoky moon. 11. Buck or windy moon. 12. Freezing or snow moon.

The Kansa count thirteen moons to the year; the thirteenth, sugar moon, occurs at the end of the Kansa year, corresponding to a February-March period.

Osage (Maxmilian). 1 and 2. mi'hka-kiruchä, the time when the lynx is in heat. 3 and 4. oh-uä-gachä, the time of the maize. 5 and 6. ————. *7 and 8. tschetoga-kiruchä, the time when the buffalo is in heat. 9, 10, and 11. tah-kiruchä, the time when the deer is in heat. 12. tah-habrähka, time of the thin hides.

Plains Cree (Lacombe). 1. kise-pisim, the old or big month. 2. mikisiwi-pisim, month of the eagle. 3. niski-pisim, month of the bustard. 4. ayekiwi-pisim, month of the frogs. 5. opineyâwewi-pisim, moon in which the birds lay eggs. 6. opâskâwehuwi-pisim, moon of the hatching. 7. opaskuwi-pisim, moon in which the birds moult. 8. oppahuwi-pisim, moon in which the birds fly away. 9. onotjihituwi-pisim, rutting moon. 10. kaskatinowi-pisim, moon in which it freezes. 11. iyikuwi-pisim, moon of the frost. 12. pawatchakinasis, moon in which the snow hangs from the trees.

Plains Cree (Maximilian). 1. kesäh-pisimm, the big moon. 2. paua-zakenassis-pisimm, moon which shakes the trees. 3. mekssiuh-pisimm, moon in which the eagle comes; or, niski-pisimm, moon of the wild goose; or, ayiki-pisimm, moon of the frogs. 4. ————. 5. opineya-uäu-pisimm, moon in which the birds lay their eggs. 6. opaskoh-pisimm, moon in which the birds shed their feathers. 7. oochpahoh-pisimm, moon in which the birds fly; or, onont-chicheto-pisimm, moon in which the buffalo is in heat. 8. ————. 9. ————. 10. opinua-skoh-pisimm, moon in which the leaves fall. *11. kaskattinoh-pisimm, ice moon. 12. kaie-iequatä'-pisimm.

Plains Cree (Skinner). 1. oteestiuvicikauu-picim, kissing moon. 2. megiauwi-picim, eagle moon. 3. niski-picim, geese moon. 4. aiiki-picim, frog moon. 5. sägibukau-picim, leaves coming out moon. 6. opineauwe'wi-picim, egg moon. 7. upaskuwi-picim, moulting moon. 8. uskauhu-picim, rutting moon. 9. tûkwagi-picim, fall moon. 10. kuskutnu-picim, frost everything. 11. pauwateiteukinasis-picim. 12. pauwatukinum-picim.

Plains Cree (Hayden). 1. kis-ki-pa'-pa-ke-te'k-e-num, coldest moon. 2. ka-ma'k-e-tuh-pe-sim, ice thawing moon. *3. is-ke-pe'-sim, duck moon. 4. a-ik-e-pe'-sim, frog moon. 5. sha-ke-pa'-ka-o-pe-sim, leaf moon. 6. me-ne-sa-ka'-tik-tuk-e, service berries ripe. 7. no'-tse-hi-ko'-pe-sim, buffalo rutting moon. 8. wa-ke-pa-ka'n-o-pe-sim, leaves changing moon. 9. wa-sta-o-pa-ka'-wo-pe-sim, leaves entirely changed. 10. pin-pa-ka'n-o-pe-sim, leaves off the trees. 11. na-ma-pi'-ne-kais, fish catching moon. 12. pa-pa-ke-se'-kin-e-kis, moon that strikes the earth cold.

The Plains Cree have a thirteenth moon, me-ke-sû'-e-pe-sim, eagles seen moon, which occurs about February–March.

Plains Cree (Schoolcraft). 1. Cold moon. 2. Big moon. 3. Eagle moon. 4. Goose moon. *5. Frog Moon. 6. Moon in which the birds begin to lay eggs. 7. Moon in which the birds moult. 8. Moon in which the birds begin to fly. 9. Moon in which the moose cast their horns. 10. Rutting moon. 11. Hoar frost or ice moon. 12. Whirlwind moon.

Blackfoot (Wissler). 1. Changeable moon. 2. Uncertain moon. 3. Geese moon. 4. Beginning of summer moon. 5. Frog moon. 6. Thunder moon. 7. Big Sunday moon. 8. Berry moon. 9. Choke cherry moon. *10 Beginning of winter moon. 11. Wind moon. 12. Cold moon. 13. Two big Sunday moon. Big Sunday and two big Sunday refer to the Fourth of July and Christmas.

Blackfoot (Schoolcraft). 1. Cold moon. 2. Snowy moon. *3. Green moon. 4. Moon of planting. 5. Moon of the flowers. 6. Hot moon. 7. Moon of the deer. 8. Sturgeon moon. 9. Fruit moon. 10. Traveling moon. 11. Beaver moon. 12. Hunting moon.

Bannock (Clark). 1. Black smoke, that is cold. 2. Bare spots along trail. 3. Little grass, or grass first comes up. 4. ————. 5. ————. 6. ————. 7. ————. 8. ————. 9. ————. 10. ————. *11. Running season for game. 12. Big moon.

Clark does not correlate the Bannock month list with our months. He says that there are no names for the months after the season gets warm.

Uintah Ute (Sapir). 1. togut·omum·agat·ogute, middle winter moon; or, avat·omum·agat·ogute, big winter moon. 2. pinaromum·agat·ogute, last winter moon. 3. tamam·agat·ogute, spring moon. 4. avat'·ĭntamam·agat·ogute, big spring moon. 5. pinaramam·agat·ogute, last spring moon. *6. tatcam·agat·ogute, summer moon. 7. togut·atcam·agat·ogute, middle summer moon. 8. pinarateam·-agat·ogute, last summer moon. 9. yĭv^{w}anam·agat·ogute, fall moon. 10. togu't·ĭrugwam·agat·ogute, middle fall moon; or. avat·i^{c}vanam·agat·ogute, big fall moon. 11. pinei'ĭv^{w}anam·agat·ogute, last fall moon. 12. tomum·agat·ogute, winter moon.

Northeastern Woodland

Micmac (Rand). 1. boonămooeegoos. 2. ăbŭgŭnăjit (perhaps the snow blinder). 3. segowgoo's. 4. pŭnădŭmooegoo's. 5. agesegoos'. 6. nibŭnegoos'. 7. pskooegoos'. 8. kesagăwegoos'. 9. măjowhtoogweegoos'. 10. wegowegoos'. 11. skools. 12. ăkchegoos', the great or most excellent month because of Christmas.

Micmac (Mechling). 1. bunadamigŭ's. 2. abiginā'djit. 3. sigowigŭ's. 4. pinădimwigŭ's. 5. agzĭ'g'ŭs. 6. nibinigŭ's. 7. apsgwigŭ's. 8. kisaywigŭ's. 9. madjō'yatwigŭ's. 10. wigē'wig'ŭs. 11. skŭls. 12. '^{cu}djuɣnldjiwigŭs.

Beothuk (Gatschet). 1. kobshuncesarnut. 2. kosthabono'ng bewajowit. 3. manamiss. 4. wasnmaweeseek. 5. bedejamish bewajowite. 6. wasumaweeseek. 7. kowayaseek. 8. wadawhegh. 9. wasnmaweeseek. 10. godabonyegh. 11. godabonyeesh. 12. odasweeteeshamut.

Gatschet says that it seems doubtful to him that April, June, and September were all called by the same name.

Malecite (Mechling). 1. piadiwiswigĭ'zus, probably the month when the branches of the pine and fir trees break off with the cold. 2. tigwā'stnnigĭ'zns, month in which it is getting towards spring. 3. agluzunwē'sit, the month in which things are scarce. 4. panadamuwigĭ'zns, month in which birds begin to fly. 5. sigunamigwigĭ'zus, month when fish come up. 6. skawswewigĭ'zus, month in which everything is in bloom. 7. teuwaxpigĭ'zns, month in which the frogs are in the water. 8. wikē'wigĭ'zns, month in which everything is ripe. 9. madjèwidolkgigĭ'zns, month in which the animals begin to rut. 10. tagwā'gigĭ'zus, the height of autumn. 11. giwā'djigĭ'zus, it is a lonesome month. 12. ktigĭ'zus (the latter part of November and the first part of December). 13. midjigĭ'zns, bad month.

Malecite (Mechling, from Vetromile). 1. onglusamwessit, it is hard to get a living. 2. taquask nikizoos, month in which there is a crust on the snow. 3. pnhodamwikizoos, month in which we catch fish. 4. a mnsswikizoos, month in which we catch fish. 5. kikkaikizoos, month in which we sow. 6. muskoskikizoos, month in which we catch young seals. 7. atchittaikizoos, month in which the berries are ripe. 8. wikkaikizoos, month in which there is a heap of eels on the sand. 9. mantchewadokkikizoos, month in which there are herds of mooses, bears, etc. 10. assebaskwats, there is ice on the banks. 11. a bonomhsswikizoos, month in which the first fish comes. 12. ketchikizoos, the long month.

Eastern Cree (Skinner). 1. gishe'papīwate'kīmumpizun, month in which the old fellow spreads the brush. 2. ce'pizun, old month. 3. mīgīsupizun, eagle month. 4. mîskīpizun, gray goose month. 5. alīgipizun, frog month. 6. sagipukawipizun, month in which the leaves come out. 7. opaskwuwipizun, month in which the ducks begin to moult. 8. opunhopizun, month in which young ducks begin to fly. 9. we'we'opizun, wavy or snow goose month. 10. opīnahamowipizun, month in which the birds fly south. 11. kaska'tinopizun, month in which the rivers begin to freeze. 12. papiwatiginashispizun, month in which the young fellow spreads the brush.

Explanation of the references to "the old fellow" or the "young fellow spreading the brush": winter causes the pine needles to fall on the snow, forming a covering like pine boughs laid on the floor of a wigwam for bedding; the laying is called "spreading."

Eastern Cree (Harmon). 1. kush-a-pa-was-ti-ca-num o pes-im, extreme cold month. 2. kee-chay o pes-im, month in which the young birds begin to chirp; or, kich-ee o pes-im, old month. 3. me-ke-su o pes-im, eagle month. 4. nis-ka o pes-im, goose month. *5. i-iche pesim, frog month. 6. o-piwâ-wâ we pes-im, month in which the birds begin to lay eggs. 7. o pus-ko we pes-im, month in which birds cast their feathers. 8. o-pâ-ko we pes-im, month in which young birds begin to fly. 9. wâ-wâs-kis o pes-im, month in which moose cast their horns; or, a-pin-nâs-ko o pes-im, month the leaves fall off the trees. 10. o-no-chi-kit-o-wa o pes-im, the rutting month; or, o-ke-wa-ow-o pes-im, month the fowls go south. 11. ay-e-coop-ay o pe-sim, hoar frost month; or kus-kut-te-no o pes-im, ice month. 12. pa-watch-e-can-a-nas o pes-im, whirlwind month.

Harmon says there are thirteen months, but he gives only twelve in his list.

Eastern Cree (Mackenzie). 1. kushapawasticanum o pishim, extreme cold moon. 2. kichi pishim, big moon, or old man. 3. mickysue pishim, eagle moon. 4. niskaw o pishim, goose moon. *5. atheiky o pishim, frog moon. 6. oppinu o pishim, moon in which the birds begin to lay eggs. 7. aupasken o pishim, moon in which birds cast their feathers. 8. aupahou o pishim, moon in which the young birds begin to fly. 9. waskiscon o pishim, moon in which the moose deer cast their horns. 10. wisac o pishim, rutting moon. 11 thithigon pewai o pishim, hoar frost moon; or, kuskatinayoui o pishim, ice moon. 12. pawatchicananasis o pishim, whirlwind moon.

Montagnais (McKenzie). 1. tshipishime, the great moon. 2. epiche'-na-mas-kui pishime, snow falls from the leaves. 3. mitisu pishime, eagle moon. 4. nishique pishime, bustard moon. 5. uabikum pishime, budding moon. 6. ui-sha-ku pishime, rutting moon. 7. pinaue'u pishime, moulting moon. 8. ushe'kau pishime, caribou horns cast their moss. 9. uatshe'tshi pishime, the leaf turns yellow. 10. penatshi pishime, the leaf falls. 11. takuatche pishime, the fall moon. 12. t-she'-pa-peu pishime, the hard or severe moon.

Montagnais (Petitot). 1. nilttsi sa tsélè, little month of wind, or, ménè kli dèdhi sa, hard moon. 2. nilttsi-sa-tchôρ, great month of wind. *3. béni l'in--thèli, month the dog sweats, or, dèttan-ni-tchô za, month of eagles. 4. t'én-tssi-kkè-na-izàlé, ice hangs in needles. 5. béni etchèdhi, month of moulting, or, béni-ég'èzè, month of the sea; or, t'en-ttsi-'tla na"a, end of the ice, or, ttsalé sa, month of frogs. 6. béni-éttchédhi, moulting, or, enial"az-tsélé, small departure of reindeer. 7. enil"az-tchô, great departure of reindeer, or, béni-nal"assi, month of departure. 8. kénu-zaé, month of gentle heat. 9. béni tè ρédàli, month of rutting, or, égun-tchènè sa, month of the shoulder blades of reindeer. 10. béni-tsi"éli, month of the foetus, when the roe carries her young, or, inttsé-naë sa, month of the roe of the elk or moose deer. 11. nni sa otsélé, small month

of cold, or, djiésh in-sa, month of fishing with a hook. 12. uni-sa-tchôρ, great month of cold, or, l'ué-sa, month of fish.

Northern Saulteaux (Skinner). 1. djiba'piwutkizis (djiba means morning). 2. kje'kizis, big moon. 3. mikisi'ukizis, eagle moon. 4. niki'kizus, moon in which the geese come, or goose moon. 5. mau'gokizis, loon moon. 6. sagibu'kkaokizis, budding leaf moon. 7. woskunitci'kizis, unripe berry moon. 8. atiktemi'nikizis, ripe berry moon. 9. pazikohoikizis, moon in which the young ducks begin to fly. 10. pimahamoikizis, moon in which the birds begin to fly south. 11. kuskntinikizis, freezing moon, or lakes and rivers freezing moon. 12 piehipiponikizis, moon that winter begins.

Ojibwa, Long Lake, Ontario (Waugh). 1. ge'nose', long moon. 2. abtabogi'zis, half the winter month; or, onä'bɛnagi'zis, can walk on the crust of the snow month. 3. ⁿγmäb'γnγgi'zᵉs, sucker month. 4. ᵇγki'gi'zis, goose month; or, bokω'gγmegi'zis, breaking snowshoe month. 5. maŋgogi'zis, loon month. 6. bagɛ'dä'nogi'zis, lakes opening up month. 7. ω'bigaˑnogi'zis, flowers coming out month. 8. skandji'gi'zis, berries not yet ripe month. 9. a'bteni'b nogi'zis, half the summer month. 10. ame'gsγgi'zis, trout month. 11. adikame'gogi'zis, white fish month. 12. ekadγno'gi'zis, lakes frozen up month. 13. ᵇᶦdjibɛbo''gizis, first part of the winter month.

Ojibwa, from Nipigon, Ontario (Waugh). *1. anamkoda'dɛ'z, the new year, or the beginning of the year. 2. abta'bdo'm, half the winter. 3. nameb.ngi'zis, sucker moon. 4. nki'gi'zis, geese moon. 5. ma'ŋgogi'zis, loon moon. 6. wω'bγgwa'nigi'zis, flower moon. 7. minγgi'zis, berry moon. 8. abteni'bɛnogi'zis, half the summer month. 9. namegwɛse'sagi'zis, small trout moon. 10. ᵏᶦtcname'ᵏʷɪsgi'zis, big trout month. 11. addkγme'gogi'zis, white fish moon. 12. mänido' gizis, spirit moon. 13. ᵏɪteige''onzi, long days and nights moon.

Ojibwa (Wilson). 1. muhnedoo keezis, spirit month. 2. nuhma'bene keezis, sucker month. 3. ona'hbune keezis, month of the crust of the snow. 4. baboooquada'hgiming keezis, snow-shoe breaking month. 5. wa'hbegoone ke'ezis, month of the flowers. 6. oda'ëmene keezis, the strawberry month. 7. misque'emene keezis, the raspberry month. 8. meen keezis, the bilberry month. 9. muhno'omene keezis, the wild rice month. 10. pena'hque keezis, month of the falling leaves. 11. kushku'dene keezis, the freezing month. 12. mu'hnedoo keezisoons, little spirit month.

Ojibwa (Baraga). 1. manito-gisiss, moon of the spirit. 2. name'bini-gisiss, moon of the suckers. 3. ona'bani-gisiss, moon of the crust on the snow. 4. bebokwe'dagiming-gisiss, moon of the breaking of snow-shoes. 5. wâbigon-gisiss, moon of the flowers and blooms. 6. odêimini-gisiss, moon of strawberries. 7. miskwîmini-gisiss, moon of raspberries. 8. min-gisiss, moon of whortle berries. 9. manominike-gisiss, moon of the gathering of wild rice. 10. binâkwi-gisiss, moon of the falling of the leaves. 11. gashkadino-gisiss, moon of freezing. 12. manito-gisissons, little moon of the spirit.

Ojibwa (Keating).[133] 1. nanabushe kisis (the name of a fabulous char-

[133] Diacritical characters have been omitted.

acter). 2. kacha kisis, great moon; or kanosis kisis, long moon. *3. mekissawe kisis, eagle moon; or, namapinne kisis, carp moon. 4. nepenesa kisis, summer birds; or, onapamo kisis, freezing moon; or, nekeg kisis, wild goose moon. 5. sagipakawe kisis, opening leaves moon. 6. otaemene kisis, ripe strawberries moon. 7. menine kisis, huckleberry moon. 8. apittanenepene kisis, midsummer moon. 9. amanoso kisis, rutting moon. 10. penakwe kisis, falling leaves moon. 11. oshekepippon kisis, the approach of winter moon; or, takwahke kisis, the hardening of the earth moon. 12. pippon kisis, winter.

Ojibwa (Beltrami). 1. kitci-manito nisìs, moon of the great spirit. 2. wamebinni-quisìs, moon of the coming of eagles. 3. onabanni-qnisìs, moon of the hardened snow. 4. poknodaquimì-quisìs, moon of the snow-shoes. 5. wabi'gon-qnisìs, moon of the flowers. 6. hodhetmin-quisìs, moon of the strawberries. 7. mikin-qnisìs, moon of the blue fruits. 8. wathebaquì-quisìs, moon of the yellow leaves. 9. inaquì-quisìs, moon o fthe falling leaves. 10. bima hamo-quisìs, moon of the migratory game. 11. kaskadinò-quisìs, moon of the snow. 12. manito-quisìs, moon of the little spirit.

Winnebago (Schoolcraft). 1. honch wu-ho-no-nik, little bear's time. 2. honch-wee hutta-raw, big bear's time. 3. mak-hu-e-kee-ro kok, raccoon running time. 4. ho-a-do-ku-noo-nnk, fishrunning time. *5. me-tow-zhe-raw, drying of the earth. 6. maw-ka-wee-raw, digging of the earth or planting time. 7. maw-o-a-naw, hoeing corn time. 8. maw-hoch-ra-wee-daw, corn tasseling time. 9. wu-toch-aw-he-raw, corn popping or harvest time. 10. ho-waw-zho-ze-raw, elk whistling time. 11. cha-ka-wo-ka-raw, deer rnnning time. 12. cha-ka-wak-cho-raw, deer's horns dripping time.

Winnebago (Radin). 1. First bear month. 2. Last bear month. 3. Raccoon breeding time. 4. Fish month. 5. Drying of earth month. 6. Digging of earth month. 7. Cultivating month. 8. Tasseling month. 9. Elk whistling month. 10. Pawing of earth month. 11. Deer breeding month. 12. Deer shedding horns month.

Radin does not believe "much stress is laid upon which of the months begins the year."

Sauk and Fox (Blair). 1. chuckee muqua keeshis, little bear month. 2. tuc-wun-nee keeshis, cold month. 3. pa-pnk-qua keeshis, sap month. 4. a-paw-in-cek-kee keeshis, fish month. 5. uc-kee-kay keeshis, planting month. 6. pa-la-nee keeshis, first summer or flowering month. 7. na-pen-nee keeshis, midsummer month. 8. mish-a-way keeshis, elk month. *9. tuc-wot-thn keeshis, first frosty month. 10. amulo keeshis, rutting month. 11 puccume keeshis, freezing month. 12. kiche muqua keeshis, big bear month.

Iroquois (Cuoq). 1. tsiotorkowa, great cold. 2. enniska, small moon. 3. enniskowa, great moon. 4. oneratokha, small leaves. 5. oneratakowa, large leaves. 6. oiarika, frnit a little ripe. 7. oiarikowa, frnit well ripe. 8. seskeha. 9. seskehow. 10. kentenha, little hard times. 11. kentenkowa, great hard times. *12. tsiotorha, little cold.

Iroquois (Barbeau, from Hewitt). 1. dis-go'-na, great or longer days. 2. ka nä'q-to-hă, somewhat immersing the leaves. 3. ka-näg-to-go'-na, thoroughly immersing the leaves. 4. heq-sat-ă, slight freezing. 5. hya-i-hă, fruits begin to ripen. 6. sis-ke-hă, (?). 7. sis-ke-gū'na, (?). 8. kẽⁿ-tõⁿ'ă, (?). 9. kẽⁿ-tõⁿ'-go'-nă, (?). 10. teo-tho-we-ha, again it is somewhat cold. 11. teo-tho-we-go'-nă, again it is greatly cold. 12. dis-ă', short days.

Iroquois (Barbeau, from Gibson). 1. disgū'na (the principal month, midwinter begins the first new moon after). 2. ganä' 'da'ha', leaves falling to the water. 3. ganä'du'gūna, great falling, leaves under the water now. 4. he-sūtū, bushes, shrubs and plants begin to grow again. 5. n'niaigūna'; or, hiaha', berries begin to ripen. 6. sīsge'ha', plants growing. 7. sisgegū'na', almost everything growing up and bearing something. 8. gäⁿdẽⁿ'a', food beginning to form. 9. gäⁿdẽⁿ'a'gū'na, great season when everything is bearing food. 10. djutuweha', beginning of cold weather. 11. djūtūwēgūwa', beginning of very cold weather. 12. disa'.

Iroquois (Barbeau, from Shea). 1. dziotaragona, moon of great cold. 2. tichha, windy month (?). 3. tichkôna, very windy (?) month. 4. ganerattoha.

5. ganerattogona. 6. ichakka. 7. hiarigóna. 8. chereskeha. 9. chereske'gona. 10. kentenha. 11. kentengóna. 12. dziotore'ha, cold month.

Iroquois (Barbeau, from Stacey). 1. djordor'kowa. 2. aniska. 3. anisgowa. 4. onerä'do'ga. 5. onerä'dogowa. 6. ohiariha. 7. ————. 8. sĕsge'a'. 9. sĕsgego'wa'. 10. ganta^{n}'ha. 11. ga^{n}ta^{n}go'wa. 12. djodora.

Iroquois (Barbeau, from Skye). 1. disgŭ'na. 2. ganä'du'ha'. 3. ganädu'gŭna'. 4. he-sûtŭ. 5. hiaügŭna'. 6. sĭge'ha'. 7. sĭs'gegŭna'. 8. gä^{n}dĕ^{n}'a'. 9. gande^{n}agŭ^{n}a'. 10. djutuweha'. 11. djutüwe'gŭna. 12. disŭ'.

Onondaga, Iroquois (Shea). 1. dziotaragona. 2. tichha. 3. tichkôna. 4. ganerattoha. 5. ganerattogôna. 6. ichakka. 7. huarigôna. 8. chereske'ha. 9. chereske'gona. 10. kentenha. 11. kentengôna. 12. dziotore'ha.

Onondaga, Iroquois (Beauchamp). *1. tis-go-nah, longer day. 2. ka-na-to-ha, winter leaves fall. 3. ka-na-to-go-nah, winter leaves fall and fill large holes. 4. e-sut-ah, warm and good days, but not planting time. 5. o-yea-ie-go-nah, strawberries ripe and leaves in full size. 6. ses-ka-hah, sun goes for long days. 7. ses-ka-go-nah, sun goés for longer days. 8. ken-ten-ah, the deer sheds its hair. 9. ken-ten-go-nah, the deer in its natural fur. *10. chut-ho-wa-ah, little cold. 11. chut-ho-wa-go-nah, large cold. 12. tis-ah, little long day.

The religious year, according to Beauchamp, begins with the White Dog Feast in January or February; in other ways the year begins in the fall when the Indian goes out to hunt. Beauchamp follows the latter order. I have indicated both.

Delaware (Heckewelder). 1. Mouse or squirrel month. 2. Frog month. *3. Shad month; later, running of sap or making sugar. 4. Spring month. 5. Planting month. 6. Fawn month; or month the deer bring forth their young; or, month in which the hair on the deer changes to a reddish color. 7. Summer month. 8. Month of roasting ears. 9. Autumn month. 10. Gathering or harvest month. 11. ————. 12. Hunting month.

Delaware (Beauchamp). 1. Squirrel month. 2. Month of frogs. *3. Shad month. 4. Planting month. 5. Time for hoeing corn. 6. Month in which the deer become red. 7. Time for hilling corn. 8. Named from the conditiou of the corn which is in the milk. 9. First month of autumn. 10. Harvest month. 11. Month for hunting. 12. Time when bucks cast their horns.

Delaware (Zeisberger). 1. anixi gischuch, squirrel month. 2. tsqualli gischuch, frog month. 3. m'choamowi gischuch, shad month. 4. quitauweuhewi gischuch, spring month. 5. tauwinipen gischuch, beginning of summer. 6. kitschinipen gischuch, summer month. 7. yugatamoewi gischuch, month in which Indian corn is gathered. (According to Loskeil.) 8. sakauweuhewi gischuch, deer month. 9. kitschitachquoak, autumn month. 10. pooxit, month of vermin. 11. wini gischuch, snow month. 12. m'chakhocque, cold month, the month when the cold makes the trees crack.

Zeisberger thinks the Lenni Lenape have no real beginning for the year, except as the result of European influence.

Tribe uncertain (Zeisberger). 1. ground squirrels come out of their holes. 2. squalle gischuch, month of frogs. *3. choame gischuch, shad month. 4. hackihewi gischuch, planting month. 5. The name signifies the month in which the hoe is used for the Indian corn. 6. The name signifies the month in which the deer become red. 7. Time for raising the earth around the corn. 8. winu gischuch, the corn in the milk—ready to eat. 9. First autumn month. 10. Harvest month. 11. Hunting month. 12. Time when the bucks cast their horns.

Delaware (Zeiszerger). 1. anixi gischuch, mouse month. 2. schqualle gischuch, frog month. 3. chwame gischuch, shad month. 4. ————. 5. chackihewi gischuch. 6. ————. 7. nipeni, summer month. 8. winaminge gischuch, month of roasting corn. 9. ————. 10. ————. 11. ————. 12. ————.

Southeastern Woodland

Choctaw (Bushnell). 1. ————. 2. hashe kapo'sha, moon of the snow. 3. hash'mahale, moon of the wind. 4. tans h-ashe, corn planting moon. 5. ————. 6. ————. 7. hash' luwak, moon of fire. 8. ————. 9. ————. 10. ————. 11. ————. *12. una'fa hashe.

Choctaw (Byington). 1. hąsh hoponi (January–February). 2. chafiskono, from hohchafo iskitini, little famine (February–March). *3. chafo chito, from hohchafo chito, big famine (March–April). 4. hąsh koiⁿchush (April–May). 5. hąsh koichito (May–June). 6. hąsh mali (June–July). 7. hąsh watullak, or (taken from an earlier list) hąsh watonlak (July–August). 8. tek iⁿhąshi (August–September). 9. hąsh bihi (September–October). 10. hąsh bissa (October–November). 11. hąsh kąf (November–December). 12. hąsh takkon (December–January).

"Muskogee" (Loughridge). 1. rv'fo-cu'sē, winter's younger brother. 2. ho'tvlē-hv'sē, wind month. 3. tasa'-hcucē, little spring month. 4. tasa'hcē-ra'kko, big spring month. 5. kē-hv'sē, mulberry month. 6. kv'co-hv'sē, blackberry month. 7. hi'yucē, little harvest or summer month. 8. hi'yo-ra'kko, big harvest or summer month. 9. otowo'skucē, little chestnut month. 10. oto-wo'skv-ra'kko, big chestnut month. 11. eho'lē, frost month. 12. rv'fo-ra'kko, big winter.

Seminole (McCauley). 1. ça-fŭts-u-tsi, little winter. 2. ho-ta-li-ha-si, wind moon. 3. ho-ta-li-ha-si-çlak-o, big wind moon. 4. ki-ha-su-tsi, little mulberry moon. 5. ki-ha-si-çlak-o, big mulberry moon. 6. ka-tco-ha-si. 7. hai-yu-tsi. 8. hai-yu-tsi-çlak-o. 9. o-ta-wŭs-ku-tsi. 10. o-ta-wŭs-ka-çlak-o. 11. i-ho-li. 12. ça-fo-çlak-o, big winter.

Yuchi (Speck). 1. sᶜăłatcpī', ground frozen moon. 2. ho'da dzo', wind moon. 3. wädᶜă sineʷ, little summer. 4. wädᶜăᶜă', big summer. 5. decᶜō' nendzo, mulberry ripening moon. 6. cpa'co nendzo', blackberry ripening moon. *7. wagᶜă'kyă, middle of summer. 8. tseᶜne aga', dog day. 9. tsoga' lī'ne-tseᶜe, hay cutting moon. 10. tsotᶜō'hoᵘstäne', corn ripening moon. 11. ————. 12. ho'ctᴀⁿdᶜă'kyă, middle of winter.

Natchez (Swanton). 1. Cold meal. 2. Chestnuts. *3. Deer. 4. Strawberries. 5. Little corn. 6. Watermelons. 7. Peaches. 8. Mulberries. 9. Maize or great corn. 10. Turkeys. 11. Bison. 12. Bears.

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